

AUSTRALIAN SOCIETY FOR LIMNOLOGY
INC

NEWSLETTER

the ~~editors~~

Have

got to go.

new
EDITORS *Wanted*

See **PA**ge **4**

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MEMBERSHIP DETAILS

The Australian Society for Limnology Inc. (ASL) is an association of over 400 people with professional or amateur interests related to Australian inland waters. Since its inception in 1961, the society has played an important role in fostering limnology in this country. The ASL promotes liaison between limnologists in academic, government and private institutions and has a vested interest in the conservation of aquatic and related resources. Annual conferences are held near centres of limnological interest, and the programme includes scientific sessions, field excursions and social activities.

The ASL regularly produces a newsletter with notes on limnological activities, articles of general interest, book reviews and announcements of upcoming events likely to be of interest to members. Occasionally, it produces a Special Publication series and a Directory of Members.

Membership applications are welcome from any person with an interest in limnology. Five classes of subscribing membership are available:

Ordinary members	\$ 25.00
Student members	\$ 12.50
Life members	\$200.00
Institutional members	\$ 30.00
Sustaining members	Fees on application

Membership covers the period from 1 July to 30 June and all members receive the regular and occasional publications produced by the society. Members may also choose to receive the Australian Journal of Marine and Freshwater Science, the Australian Journal of Zoology and/or the Australian Journal of Botany at special reduced rates. The subscription for each journal is based on the calendar year in which the subscription is paid.

Enquiries relating to membership should be directed to the Membership Officer:

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Material for publication in the June 1993 issue of the newsletter should be sent to the editors before the 21 of May 1993.

Contributions are welcome on any topic concerned with limnology (or anything else that may be of interest to the readers). Long articles should be forwarded as unformatted text on IBM-compatible discs, or as formatted text in any commonly used word processing package (e.g. WordPerfect, Microsoft Word, Wordstar). All those with Macs, send hard copy to Leon (editorial addresses are included at the end of the executive list on the last page).

Editorial

JUST SAY "YES"

Another consultant's report has fallen off the back of a truck and landed on your desk, delivered late at night for your private comments. Fastbucks Pty Ltd¹ is proposing a new major development right on the banks of a major river. Well, this should be interesting. There must be some serious concerns about the effects of this development, especially as every previous example of this type of activity has led to wholesale aquatic destruction. Surely this must be pointed out. Turn to the chapter that deals with aquatic fauna. "A consultant's report prepared by Joe Bloggs Pty. Ltd."² Mmmm. Never heard of them. Oh well, read on.

After an "exhaustive" literature search (which seems to have missed your own work on the subject published in the past year), a thorough field examination and sampling program (consisting of two days in the field at two sites), a plethora of data (the reproduction of any part of which appears to be missing from this copy) and rigorous statistical analysis (which seems to rely on the new qualitative "Looks More Than" test), the conclusion is that "the proposed development will have a negligible effect on the aquatic fauna".

Could someone tell me why it seems that every consultant's report always seems to come to the conclusion that any proposed "development" will not have a deleterious effect on the environment? Especially when a vast majority of them in the past have been shown to do exactly the opposite. What is it about this consultancy game that seems to have gone so far off the rails?

Yes, times are tough and it's a competitive world out there. Consultants are no different and have to battle to make enough money to keep their business alive (and indirectly, keep themselves alive). A major consultancy with large companies can provide a lot of money, and with it, the promise of future employment (from the same or similar companies). And so there is the obvious pressure to see things the way that the particular development company wants them to be seen. Give them the environmental green light.

Unfortunately, this can only lead to a conflict of interest between the consultant as an independent adjudicator of a particular proposal and the consultant as a business enterprise, with profit and continued employment. It is also a false economy for all parties involved. If one assumes that the company is after a list of concerns about a project (and how to avoid/minimise/suppress them), it is poor form not to offer them one. When the

¹ Company names use in this tirade are fictional. As far as we know, there is no such development company as Fastbucks, and if there is, they should be ashamed to use such a stupid name. ² We also know of no consulting company as Joe Bloggs Pty Ltd, and apologise to anyone actually called Joe Bloggs for besmirching their name.

project "blows up" in the public arena, the company gets off by saying that "our consultant's told us there was no worry", and the consultant, the company and environmental management as a whole loses.

Whether the rather pliant attitude of many consultants is just a perceived (editorial paranoia) or a real observation, there is a definite need for some mechanism to ensure the independence of advice offered to companies from consultants on environmental issues (and the comments here include all environmental issues, not just the aquatic ones). How this can be done is the big question.

In many cases, the usual response to questions of independence, bias and poor practice in an industry is to establish a "voluntary code of practice" for that industry. Well, we've seen how successful that has been in banking, insurance and the television industry (just last night I remember seeing a snippet of a TV "program" between the voluntarily determined 13 minutes of advertising per hour on a commercial channel). Consultancies are somewhat different. Codes of practice are designed to protect the consumer from the industry. In the consultants case, the consumer is the company. And if the consultant is loose with facts and interpretations, it is usually the consumer who benefits. The loser is the environment and the general public, who would generally not be covered by the terms of the code of practice.

Licensing consultants as appropriate to perform particular types of work (as opposed to the more business-oriented licensing regulations determining the formation and running of companies) is one of those administrative and legal minefields - who determines the license conditions, what qualifications are needed etc. And in other industries, licensing has been used with varied success - just look at the "Investigators" once in a while if you need proof.

The answer has, in fact, been staring us in the face for a long time. It's one that has worked pretty successfully in many field of scientific endeavour. A consultants report is no different from any other piece of scientific work. A hypothesis is established ("that the development will/will not affect the environment"), data is collected and analysed to test the hypothesis, and conclusions are drawn from the data. As with any hypothesis testing, the data collection and analysis must be rigorous and sufficient to form a conclusion, and the test of this rigour is provided through the peer-review process adopted by scientific journals.

Why then, should not all environmental consultants reports be subjected to the same type of peer-review scrutiny? They do, after-all, purport to be an independent scientific analysis of a proposal. It would be a fairly simple procedure. The report needs to be sent to a central body which farms it out to qualified referees for comment. And with this, the process includes a phase that is independent of any of the conflicts of interest involved

with the client/consultant relationship. The report must therefore come up to certain standards, otherwise it cannot be accepted. As limnologists, we should expect no less.

And, in fact, with this change, every-one wins. As a reasonable scientific study usually takes a bit longer than the current ones we see, there is more money to be had by consultants (the current percentage of project costs spent on environmental concerns is pitifully small), it overcomes the real or perceived bias of many consultants as in the pay of industry, the company will have more reasonable data with which to defend the project after it screws up (this system will probably not change the political decisions whether the proposal gets up or not), and it means that we are one step closer to an end to the *ad hoc* management of our freshwater resources.

Just something to think about.

NEW EDITORS WANTED!

Yes, due to the ever increasing burden of work - Leon now seems to be running the entire Tasmanian University system, and Tim seems to be destined to do the work of the three bug people who have left the Department - it has become necessary to divest ourselves of some of the extra-curricular activities which occupy our time. It came down to a choice between editing the ASL Newsletter or our on-going intensive study of the chemical composition of Australian Red Wines. And no prizes for guessing which one won!!

So, it is with some regret that at this years AGM, we will be calling for volunteers to take over. It is actually an enjoyable task, but it is time consuming at the four times of the year when we seem to be able to least afford it - it always coincides with the peak of the field season, lectures, exams etc. And co-ordinating it between two states has taken its toll - just look at the state of the Victorian and Tasmanian economies, driven to ruin by STD phone bills.

And after three years, it's time for a few fresh jokes. So, have a think about it. It's probably the equivalent of a full person-week of work every three months, with collating, printing and posting, not to mention getting a cover. But it is satisfying and a lot of fun, and you do keep up with what is going on in the limno world. If you (it's probably better to get a group together) are interested, let us or the executive know.

SCUTTLEBUTT, RUMOUR AND PRATTLE

NEW SOUTH WALES

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Sydney Water Board (Streams group of AWT Science and Environment)

Gossip from Debbie Rae

The highlight of this summer, for five members of our group, has been the Taxonomy workshop at the Murray-Darling Freshwater Research Centre at Albury. It seems ironic that it was necessary to drive all the way to Albury to meet with Mick Bales and his group from the Department of Water Resources, just down the road from West Ryde, at Parramatta. However, it does demonstrate just how important these workshops are for keeping the communication channels open in these hectic times.

All AWT S&E attendees gained a great deal of taxonomic information, but the workshop also provided something special for each of them. Paul McEvoy caught up with his folks, and was able to farewell Brian Sorrell, his Masters supervisor, before Brian departed for Denmark to lecture in plant physiology. Ruth O'Connor celebrated her release from the computer terminal as she has finished writing her report on "A benthic macroinvertebrate study of the Kedumba River system, 1989-1990". Debbie Rae reminisced about tropical climes and James Cook University with Ros St Clair, Brett Ingram and Darren Baldwin. Adam Boey took his first bite at macroinvertebrate taxonomy, after a delay caused by him being one of the rare few who can plot beautiful graphs in SAS. Ian Wright spent many hours looking at John Hawking's family snaps, and discussing the development of dichotomous keys for steam trains, old planes and vintage cars.

Back at West Ryde Michelle Boyd has finished the first draft of her study on "The impact of Mittagong STP on the Nattai River". She still plans to identify the dominant benthic algae species downstream of the STP from the Mittagong study whilst also leaping headlong into a new project on "Water quality response to landuse in catchment areas".

The Invertebrate megasurvey (ASL Newsletter, Vol. 30, No. 4) will continue in March, with the next series of 45 sites being in the Cox's River system. In keeping with his love for bushwalking and wild sites, Bruce Chessman appears to have only chosen sites which were surrounded by numerous contour lines on the map. We all agree that it is only fair that he be the one to sample the sites in Hellgate Gorge.

Inland Fisheries Research Station, Narrandera

Fish tales from Peter Gehrke

A number of projects at the Station are beavering away nicely, although no beavers have been sighted basking around the ponds in recent times. Welcome to David Moffat and Andrew Bruce, who have joined the staff to work on the NRMS project 'Recruitment Ecology of Native Fish Larvae and Juveniles' with Peter Gehrke and Paul Brown. We have recently completed sampling trips to the Paroo, Darling, Murrumbidgee and Murray Rivers which resulted in us catching lots of fish. David, Andrew *et al.* are now processing the catch and associated data. Early indications are that rains in late January 1992 provided fairly good conditions for recruitment of golden perch in the Paroo and Darling Rivers, both of which are unregulated or virtually so. In stark contrast, high regulated flows in both the Murrumbidgee and Murray have been a bonanza for mature adult carp with the result that we have absolutely thousands of larval and juvenile carp to process. As if that result wasn't negative enough, a further disappointment is that the number of native fish caught in the Murrumbidgee and Murray could virtually be counted on one hand.

Paul Brown has returned from an international conference on fish otoliths all fired up with ideas, techniques and useful things to do with otoliths [To impress your friends and extract huge doses of sympathy, place a large otolith in a specimen jar and present it as a gall stone - they are sure to believe your story that it was far more painful than the common garden variety].

Nick Price, a student from Sydney Uni. worked with us over the summer vacation to conduct a feasibility study on using our water supply pump system as a quantitative sampling tool for fish larvae and other drift fauna. Nick also helped out with identifications of fish larvae and produced a series of larvae for formal description.

We have had several visits from Jane Roberts at CSIRO, Griffith and two summer students, Louisa Oswald and Peter Thompson, who have been looking at some of the effects of carp on aquatic vegetation. Their results look very interesting.

Ron Patra continues with his toxicological experiments looking at the effects of temperature on chemical toxicity. Due to the questionable ethics involved in LD₅₀ tests, Ron is also developing alternative tests that do not require death as an endpoint. So far, the Critical Thermal Maximum Technique has provided results that greatly exceed LD₅₀ tests in precision, and seems to be a promising method.

Continued work on controlled flooding in Millewa Forest indicated that introduced species such as carp and Gambusia have no trouble negotiating the regulators distributing water through the forest. Native species, on the other hand, appear to be adept at avoiding these structures and remain in high numbers in the permanent habitats, even though the biomass of planktonic food is 13 times greater in the temporary, flooded forest sites.

NSW Department of Water Resources (Environmental Studies Unit), Sydney

News from Meredith Royal

As Paul (give me more work) Keyte is busy slaving away for Mick Bales it has been undemocratically and entirely unfairly decided that I should make up lots of exciting things that this unit has been doing since Mr Keyte last corresponded.

Well. Macroinvertebrate biomonitoring has forged ahead with the establishment of a further project being undertaken on behalf of the Dumaresq-Barwon Border Rivers Commission. The work generated has meant that Doug Westhorpe, myself and a progression of Uni. students are locked in a broom cupboard with the samples, a microscope and large quantities of alcohol, 24 hrs a day between field trips. When Mick finds someone who likes tuna casserole as much as he does, he expects to start up the biomanipulation project(s) in farm dams in the Lithgow/Orange area.

Dayle Green & Adam (Inspector Gadget) King have now completed mapping the wetlands of the Darling and are currently working on the Warrego and Paroo rivers. All attempts to control Adam and his well known penchant for spending money have failed dismally, resulting in an avalanche of new equipment for the Unit's Nissan. Unfortunately he forgot to purchase another vehicle to carry around all the gear.

In other news from around the unit, the intrepid Tim Cooney and Sonya Ardill have been working on river health in the Darling, with Sonya investigating (upstream of Menindee) water levels at which billabongs commence to flow and fish passage requirements as a part of a general environmental flows project for the MDBC. As part of a smaller project Tim has been doing much the same thing downstream of Menindee. Also underway is the Windemere Dam Transfer Project, an environmental optimism study wherein Janne Grose attempts to remain incredibly optimistic throughout its course whilst simultaneously attempting to calculate a level at which releases from Windemere downstream to Burrendong dam will best satisfy environmental needs.

Apart from running out of things to write about, the sunlight has now become too strong for my eyes and so, as I make a hasty retreat back to the broom cupboard, I bid you farewell.

The Murray-Darling Freshwater Research Centre

Daryl Nielsen has commenced a MSc through Charles Sturt University-Murray, supervised by Nick Klomp (CSU) and, Terry Hillman and Russ Shiel (MDFRC). Daryl's project on *The effect of flooding patterns on invertebrate and vertebrate populations in artificial billabongs*, will attempt to assess how two native communities of different trophic levels interact with each other, and how they are affected by flooding regimes and the introduction of exotic fish species. Alison Turnbull has been seconded to the Australian Antarctic Division to participate in a Marine Science cruise on the *Aurora Australis*. Voyage 9 - known as "the trip to hell and back" will leave Hobart on 12 March and return 9 weeks later. In this time, the *Aurora Australis* will travel to the ice edge (about 69°S), then move approximately parallel to the continental shelf before travelling back to Hobart. Joachim Ribbe moves to Adelaide in mid-March to commence a PhD in Physical Oceanography at the Flinders University of South Australia. He will become involved in climate research and focus on the oceanic component of the global carbon cycle. The mechanisms responsible for the flux of carbon as well as for a variety of other 'greenhouse gases' and radioactive tracers are simulated in climate models or general circulation models for the ocean and atmosphere.

Another successful Taxonomic Workshop was held at MDFRC, 9 and 10 February with approx. 50 participants. This year Ros St Clair hosted a session on Caddisfly larvae (Leptoceridae) and John Hawking on Dragonfly Larvae and keys to identify aquatic macroinvertebrates and vintage aircraft.

Russ Shiel had his arm twisted by Peter Tyler, to join him, Bayly (Monash), Kew, Magilton & Wearne (Deakin), and Walsh (Univ. Tas.) in a multidisciplinary attack on the Bass Strait Islands from 8-22 February. Apart from the 60 or so dune lakes visited by chopper, car, and bush-bashing through impenetrable ti-tree, the party had to contend with feral animals, irate natives (don't mention the Heritage Commission, National Estates or any form of conservation!), and exhaustive consumption of stuffed zucchinis, marinated wallaby, crayfish and crab (with an occasional beverage in view of the severe hardship of field work). Somebody's got to do it! A multi-authored report on chemistry, phyto- and zooplankton, macroinverts, biogeographical implications, conservation value and the epicurean delights of King Island marine macrozoobenthos will ultimately appear.

Charles Sturt University, Wagga Wagga

Utterings from Lorraine Hardwick

Life is hectic again as the students return to be further harangued. On the research front, Pat Murray has braved the mountain streams in search of Hydropsychids - and returned! Lorraine Hardwick is no longer floundering in Tarcutta Creek, but wallowing the 90 odd

samples of grunge, with more to collect. David Simon is currently dosing his microcosms with organophosphate [ow! - Eds] to make them change color; and David Robertson and Mike Healey are dreaming up yet another project to deplete the frog population even further in the Riverina. This time it's a riparian vegetation (yes, those familiar works again) frog survey.

University of New England

Snippets from Margaret Brock and Delny Britton

Summer in the Northern Tablelands has seen high and low water levels (of lagoons), germination, growth and death (of plants) and general comings and goings (of people). Stuart Blanch finally left us after (nearly) completing a vegetation report on the lower Gwydir Watercourse with Rob McCosker. Stuart is now headed for Adelaide to start a PhD in the Botany Department (Good luck Stuart, Good luck George.....!). Paul Lloyd has finished his thesis and was last seen looking for work in Brisbane after a contract job down on the Murray.

Thousands of seeds have germinated over the summer in field and laboratory trials, only to be ripped up and identified by Kevin Theodore and Delny Britton. We are into seasonality and longevity of wetland seedbanks this year, as well as species richness, propagule number and seed distribution with depth. Geoff Smith and Debbie Blinman are keeping the Guyra Bakery in business while they play with their field experiments at Mother of Ducks Lagoon.

Laurie O'Donnell has finished working on seedbanks (the seedbank work hasn't finished, but \$'s for Laurie have...). Laurie will now begin part-time research with Margaret Brock on macrophytes, water regime and farm dams. This work should link up with a farm dam project run by Mick Bales at DWR, Sydney.

Michelle Casanova is into the final leg of writing up her PhD thesis on charophytes (looking none the worse for the experience), and Dorothy Bell is pursuing plants, particularly *Eleocharis* species, in all sorts of lagoons.

It has been a busy time for meetings. Various members of the Group attended the Wastewater meeting and the ASPAB (Australian Society for Phycology and Aquatic Botany) conference held in Sydney in December, and the Macquarie Marshes are on Marg Brock's agenda for 1993.

Australian Nuclear Science and Technology Organisation (ANSTO)

From John Ferris

Well, it's been a long while since I wrote anything for so august a publication as this, a lifetime in fact, so you will have to forgive any rough edges. Lest you have forgotten, there is a small cadre of freshwater biological types nestled quietly in the bosom of the Australian Nuclear Science and Technology Organisation. We, Ross Jeffree, John Twining, Scott Markich and myself (John Ferris) are busily engaged in our various limnological pursuits. Ross and John have fairly recently revisited the Finnis River, which drains the old Rum Jungle mine area, to do some fishing. Quite apart from finding a new species and possibly genus of "Grunter" (Teraponidae), they are able to report that the abundance and diversity of fish has recovered from the rather seriously affected state of 19 years ago. This is encouraging news for those who put lots of money and effort into and onto the tailings heaps left after mining operations ceased in 1971. Some of you may have heard Ross "grunting" at Ramona Koval on Radio National - testament to just how seriously science is being taken these days!! Meanwhile, Scott Markich continues to scale the embankments surrounding various journals and bombard them with papers explaining the uptake of all manner of metals by mussels who can't tell the difference between uranium and calcium. Scott, Ross and Paul Brown (a chemist) are proving the advantages of close co-operation, both in the lab, and at the pub.

John Twining, one time activist in the uptake of radionuclides by Northern Territory waterlilies, is also involved in the Rum Jungle work, a study which we all hope will be continued and extended. In pursuit of information on fish movement in the Finnis, John recently tracked Keith Bishop to earth in Bungwahl and reports that Keith is alive and well and working on Magela Creek publications and in the Belling River.

As for me, I continue my interest in the dynamic responses of algae to changing light, in cooperation with denizens of UWA (John Patterson) and Murdoch (Celeste Wilson), as well as some work with the Sydney Water Board aimed at preserving the integrity of their laboriously collected 30+ yr data set for Lake Burragorang.

Apart from this, we are all busily answering the call to "make money" by consulting with anyone and everyone whom we can convince to feel an urgent need for our individual or collective talents.

NORTHERN TERRITORY

Correspondent: Chris Humphrey, Alligator Rivers Region Research Institute, Office of the Supervising Scientist, Jabiru, NT 0886

(See also John Ferris's contribution under NSW - *Eds*)

Life in the Top End since mid January has been very pleasant indeed, lots of rain, streams running a banker - a welcome change after many seasons of poor rainfall. Peter Dostine and Greg Rippon though are off to drier climes (1-2 March) in Wee Waa (NSW) to share their thoughts, with other specialists, on effective biological monitoring programs and laboratory toxicity testing procedures respectively, in an Ecotoxicology Workshop on pesticide impacts on aquatic systems in the cotton growing districts of NSW and QLD. Chris Humphrey is drawing material together for a keynote address on developments in biological monitoring programs to assess mining impacts, to be presented at the SETAC meeting in Lisbon, Portugal in late March. With the barra off the bite for the time being, Bob Pidgeon is desk bound analysing Magela Creek fish migration data and South Alligator River fish community data (again). Meanwhile, we are all breathing a sigh of relief as we learn from Dan Faith that coefficients of variation of dissimilarity values calculated (from macroinvertebrate community data) between 'control' and 'to-be-distributed' sites of the upper South Alligator River over a 5 year period, are low. In short, this low variability in community structure both amongst sites and amongst years implies that the number of temporal replicates in a 'baseline' period - required in valid statistical designs for biological monitoring (e.g. BACIP) - is not inordinate. Nice. [You bet!! - *Eds.*] NT limnologists were blessed with visits from Bill Williams (Adelaide Uni) and Dilwyn Griffiths (James Cook Uni): both gave talks in Darwin while Bill came out to Jabiru to talk on "Parched continents: our common future." Bill was in the NT at the invitation of the NT Power and Water Authority. In fact, at this very moment, Bill, Kevin Boland and Simon Townsend are cruising up and down Corroboree Billabong on the Mary River in a house-boat would you believe? [We're afraid we do. - *Eds.*] All serious stuff we're told - Bill's giving his considered opinion on the 'problem' (?) of aquatic macrophyte growth as it affects recreational fishing and on the separate issue of the fish kills that occasion the waterway.

The steady stream of Honours students through ARRRI continues. Yvette Burrows- Ellis (VUT) together with ARRRI staff Brendan Lewis and Ian Brown, is conducting concurrent field and laboratory toxicity tests using freshwater snails. Michael Smith (ANU) is about to embark on a project on the recovery of the fauna in a section of Rockhole Mine Creek previously affected by pollution. The project has been developed jointly with Peter Cranston (CSIRO. ANIC). Finally, ARRRI recently hosted a workshop organised by CSIRO and ANPWS to assess progress with research and management of

the *Salvinia molesta* problem in Kakadu. Chaired by Max Finlayson from OSS, the 15 invited participants considered the history of spread and control of *Salvinia* elsewhere in the world and the implications for the Top End of the NT. The major outcomes of this meeting of gurus were recognition of the current status and effectiveness of biological control under local conditions, the need for more information on the ecological effects of *Salvinia*, and most importantly, agreement that considerable effort should be directed towards developing an integrated management approach, incorporating chemical control methods. Whilst directed towards Kakadu the research being funded by ANPWS and undertaken by CSIRO has implications for similar problems (present and future) in the Top End.

SOUTH AUSTRALIA

Correspondent: Marcus Brownlow, Department of Botany, University of Adelaide, S.A. 5000; e-mail: mbrownlow@botany.adelaide.edu.au.

State Water Laboratories

Peter Baker and Mike Burch have been busy preparing for the "Blue-Green Algal Blooms - New Developments in Research and Management" seminar which was held in Adelaide on 17 February 1993.

Peter Baker and Andrew Humpesch are currently writing up their report on toxic cyanobacteria in the Murray-Darling Basin. Mike Burch is carrying on the tradition of research on toxic *Microcystis* in Mt Bold Reservoir, and is also jointly supervising with George Ganf an Honours student who will be working on light and toxin production.

Peter Baker also ran a successful blue-green algal taxonomy workshop in November last year which had 20 interstate algologists marvelling at the characteristics of blue-greens.

Peter Goonan, Jenny Beer, Tim Thompson and Phil Suter are writing up their results on the monitoring of floodplain wetlands of the River Murray in South Australia. Currently they are digging their way through vast quantities of data. Serious consideration is being given to dumping a large quantity of data on Andrew Boulton.

Phil Suter has received a small grant from ABRIS to work on the Baetidae, and looks forward to receiving material from other states. Phil is also involved with assisting some school groups in improving their environmental curriculum, particularly along the River Murray.

Botany Department - The University of Adelaide

George Ganf presented a paper at the "Blue-Green Algal Blooms - New Developments in Research and Management" workshop on the role of gas vesicles in the ecology of cyanobacteria. George is also jointly supervising Justin Brookes, our new Honours student, together with Mike Burch from E&WS. Justin will be studying the effect of irradiance on the toxicity of the blue-green alga *Microcystis aeruginosa*. He is also developing a technique to separate two morphologically distinct strains of *Microcystis*, and separate *Microcystis* from *Anabaena*, using a **pressure bomb**. [Hey!! He didn't hire a truck and drive it into the World Trade Center recently, did he? - Eds] Watch this space for further news.

Our previous cohort of Honours students are busily preparing their talks for the ASL congress, and looking forward (?) to their departmental seminars and thesis preparations. Kerri Muller, who has been examining the production of methane from sediments in Bool Lagoon, has found that gas chromatography equipment is 1) expensive, 2) unreliable and 3) closely guarded by their owners. It appears that methane flux from sediments takes two possible routes - either direct ebullition through the water column, or convective flow through macrophyte stems. She is now attempting an *in vitro* experiment to compare the potential methanogenesis rates with field rates from the swamp. Matthew Denton has been examining the influence of flooding on *Melaleuca halmaturorum* (Swamp paper Bark), and has shown in a pond experiment that both the time and depth of flooding affects seedling survival. Interestingly, simulation of rapid drawdown has a greater effect on survival than the period of inundation. Marcus Brownlow continues his analysis and sometime writing on the influence of managed water regimes on the aquatic flora of Bool Lagoon.

Marcus Cooling has just started his Ph.D. with George and Keith Walker, and will continue the current research theme of the influence of water regime on aquatic vegetation. We are all anxiously awaiting the arrival of Stuart Blanche, who will take up the second GGG/KFW LWRDC-funded Ph.D. position. Good luck to both of you.

Zoology Department, The University of Adelaide

The new year has seen an influx of wet postgrad students into the Zoology Department - some of whom may appear at ASL 1993. These include Adrienne Burns who will work with Keith Walker on the "Ecology of periphyton in the River Murray", Craig Styan also with Keith to examine "Complex environmental gradients on the lower Murray", Stuart Blanche and Marcus Cooling with George Ganf (Botany Dept.) and Keith Walker examining "Effects of water-level regimes on wetland plants" as part of the LWRDC grant, John Dalton-Morgan with Prof. W.D. Williams to continue working on salt lakes and Sam Wade with Andrew Boulton to look at the "Productivity of the hyporheos in temporary

streams". From Italy Lorenzo Vilizzi will soon arrive to work with Keith on a topic still undecided.

Among the new crop of Honours students are Brenton Zampatti examining the "Toxicity of Cyanobacteria to fish", Liz Larwood - "Ecology of biting midges at Loxton", Sandra Grinter - "leachates, macroinvertebrates and Eucalypt leaves", Karen Peisley - another Hyporheic project, Nick Souter - "Ecology of platypus habitats on Kangaroo Island" and Celina Gartrell "Effects of crowding on yabbies".

Peter Schultz who started his Honours work in mid 1992 has been examining "Disturbance and patch dynamics of arid zone springbrooks" in the Flinders Ranges with Andrew Boulton. Unfortunately "arid" has been a foreign word in SA over the last six months with Peter being blessed with the wettest year on record. At the outset his "disturbance" was to be impacts of domestic stock (cattle and sheep) however, some of the largest recorded floods turned the springs into raging torrents and dwarfed any impacts that stomping cattle may have had. Luckily, due to flash data recording and flexible experimental design, innovative scientific use was made of the floods.

Jim Puckridge, Fran Sheldon, Andrew Boulton and Keith Walker have been working on a paper, submitted to *Regulated Rivers: Research and Management*, dealing with the role of flow variability in the ecology of large rivers and its applicability to the Flood Pulse Concept (cf. Junk *et al.*, 1989). Jim and Fran are soon to be involved in a survey of the Diamantina floodplain (north-east South Australia) as part of a National Estate Grant. Andrew keeps playing with strawberry coloured water from the Flinders (says it has something to do with nutrient analysis) and is at the moment flat out and in pain with Ross River fever - the perils of field work!! Keith Walker has finished his trips to the far flung regions of China and may talk of his work there at this year's sunny ASL.

There was recently a visit from Professor Geoff Codd (University of Dundee) to talk on his work with cyanobacterial toxins. Prof. Codd will conduct some collaborative work with Professor Ian Falconer, now Deputy Vice Chancellor (Academic) at Uni of Adelaide, also an authority on blue green algal blooms.

NORTH QUEENSLAND

Correspondent: Paul Clayton, Department of Zoology, James Cook University, Townsville, Qld 4811. Ph: (077) 81 4520; E-mail: zlpdc@marlin.jcu.edu.au

Computers have been humming in all corners of the freshwater centre (ACTFR) in the last few months. Morgan Thomas has completed the final report for a twelve month study

of the flora and fauna of the Burdekin River floodplain. George Lukacs and Jacqui Nolen will finish a second, complimentary study of the wetlands of the Burdekin floodplain (and the Barratta Creek system) in June. Further work in the Burdekin River region seems likely.

In a past newsletter I hinted that you may not have heard the last of the CSR dunder study. Well, due to popular demand, the freshwater centre looks set to continue work in the Mackay/Sarina region of Queensland. This time I hope to have a much closer look at the movement of dunder into streams after its applied to the sugar-cane fields, as well as continued monitoring of the aquatic community. [We are *soooo* pleased!!! - Eds]

Not to be outdone by Leon's interdisciplinary research boast of last September, the ACTFR has just completed a large environmental impact survey of Teemburra Creek and surrounds, west of Mackay, following a proposal by the Queensland Water Resources Commission to build a dam. The work involved terrestrial and aquatic flora and fauna, water chemistry, hydrology, archaeology and socio-economics.

Stuart Bunn visited us in November (on his way to Weipa) in time for our Christmas party on Magnetic Island. Time was spent discussing the forthcoming riparian workshop and who should buy the next round, but was he the one responsible for our eviction from the swimming pool around midnight?

Ian Roderick has left us for greener and wetter pastures, leaving his home brew kit in Townsville (Now that's sacrifice for science!). He has started work at Ok Tedi in PNG, taking up where Ross Smith and Jim Tait left off. He'd probably make a good PNG correspondent What do you think Eds [He's already volunteered, and we have been glad to accept - Eds]?

The ACTFR has started an eight month study of invertebrates in the Fly River system in PNG (an OK Tedi funded program). Steve Comport, an ex-possum person, has had an introduction to aquatic ecology and animals without backbones and is off to PNG for six months to run the field component of the study. Lee Benson will be controlling things from the Australian end here at James Cook.

James Cook has been successful in attracting funding for three CRC's (Co-operative Research Centres); coral reef, aquaculture and rainforest. The rainforest CRC has a large biota inventory component which Richard Pearson will be supervising and freshwater systems will feature prominently (we hope!). The aquaculture CRC, although intended primarily for marine and estuarine studies, may also have some opportunities for freshwater studies (e.g. redclaw crayfish, barramundi, jungle perch etc..). More info about the CRC's in the next newsletter from Richard Pearson.

As part of the rainforest CRC and other projects here, we will soon be rationalising and re-organising our invertebrate collections (and fish probably). The aim is to create one large reference collection for North Queensland which will be readily available to everyone. Quite a lot of targeted collecting will be involved as well as collation of existing information. So, we are keen to hear from anyone with an interest in receiving specimens for identification or those of you who already have collections from the North Queensland region or anyone with other comments. If you think you can help, please contact Richard Pearson or myself.

WESTERN AUSTRALIA

Correspondent: Nicola Fletcher, B.E.S., Murdoch University, Murdoch, W.A. 6150.

After all that silence, we get not one but two contributions from the West. A double whammy of goss!

Wetlands group, Murdoch University

The Wetland Ecology lab as always is a hive of activity, with Aquatic Systems students asking last minute questions before their exam and numerous masters, honours and project students frantically finishing their masterpieces. Needless to say, the semi-permanent residents of the lab are also busy. Declan Morgan, Jenny Davis, Jane Chambers and Ray Froend recently attended a workshop on wetland buffer zones, which was convened by Lloyd Townley of CSIRO. The workshop was very productive and a document is to be published in the near future.

Declan will shortly be travelling to Ireland for an extended field trip where he will sample the water quality of the St. James Gate Brewery spring, using the recognised pint of Guinness technique. [Hmmm... - Eds] Lorna Charlton is also about to embark on a Christmas pilgrimage to Millstream; at present she is wrestling (unsuccessfully) with data loggers, in preparation for her trip. Siripong Pornpitat and Poranee Utayopas are returning to Thailand at Christmas to avoid our cold weather. Unfortunately, Siripong will not be coming back as he has completed his masters. We wish him the best of luck for the future.

Jane Latchford would like to warn any eastern state visitors to bring their mossie repellent with them this summer, as the combination of high tides and frequent rain (not to mention hail) has produced excellent conditions for mosquito breeding and with it the potential threat of Ross River virus infection. Meanwhile, Kerry Trayler has been heard to mumble

a few obscenities from the depths of a sorting tray in her most recent macroinvertebrate endeavour.

Ex-members of the wetland group have had an eventful month. Mark Lund has a new spring in his step as a result of securing a tutorship at Edith Cowan University, Joondalup campus. Ivor and Jane Grown have moved from Hobart to Cronulla NSW where Ivor has taken up a research position at the Fisheries Research Institute. Adrian Pinder is enjoying his new vocation as an oligochaete taxonomist. He is currently residing at the Aquatic Resource Centre, Franklin, Tennessee, but will return to the Museum of Victoria next June. Sue Harrington is revisiting the joys of wetland ecology, she has been appointed as an assistant to the Medical Entomologist at the W.A. Health Department. Sue's understanding of wetland processes will be valuable in combating the mosquito problems in environmentally safe ways.

Jane Chambers recently attended the Wetlands conference in Ohio and has now returned suitably enthused after a good conference.

Fisheries Group, Murdoch University

Life in the fish group has been very quiet in the last few months. Everybody has been anteriors down and posteriors up (sounds disgusting) trying to fight back the ever accumulating data. The lack of raucous behaviour in the labs is more likely due to the absence of people like Paul Humphries and Tom Rose. Tom has departed Murdoch and is writing up his thesis in his rare spare moments while working at the Waterways Commission.

Congratulations to Howard Gill who has finally submitted his Ph.D. thesis. Dan Gaughan is experiencing the final psychological traumas of his Ph.D. and will submit before Christmas. Finally, a number of people at Murdoch are concerned about the inevitable emergence of another Paul Humphries into the world. Can we cope with two of them?

Centre For Water Research, University of Western Australia

John Patterson recently visited Santa Barbara to complete work with John Melack and Jose Romero on a project at Mono Lake which was the focus of his visit last summer. He also delivered a presentation on recent DYRESM developments at the LA Department of Water and Power. CWR already has a project with them on the destratification of Hollywood Reservoir, and it now looks as though there will be an extension of that work. LA is circled by a number of small reservoirs, all of which have water quality problems of one kind or another, and LADWP are very interested in the Centre's modelling capabilities. A highlight of the stay was a visit to Hollywood Reservoir which is in the Hollywood hills, surrounded by the houses of the truly wealthy, who will no doubt be

delighted when the compressor for a CWR designed destratification system starts up. The track around the reservoir is also evidently the favourite jogging site for Madonna, but she was not there on the day of the visit. [Can't help bad luck, we suppose - Eds]

The trip also incorporated attending the limnology conference in Ceske Budejovice in Czechoslovakia. The conference was attended by a mixture of limnologists, water quality engineers and modellers from a variety of countries, though mostly from South America and recent Eastern Bloc countries, with a sprinkling from the US and England. John was the only Australian presenter there, although the editor of the Australian Journal of Marine and Freshwater Science was there as a participant. John gave a keynote talk on the interaction between the biological and physical systems in lakes, and also a paper on DYRESM authored by himself and Graham Hocking. The conference was originated by Milan Straskraba, who visited the Centre some years ago and is planning another visit early next year.

Jorg Imberger recently departed for study leave in the United States. On his way there, he visited the University of Padova, where he delivered a series of undergraduate lectures on transport processes in lakes and estuaries and also carried out some work in the Po River and the Barbamarco Lagoon. While in Italy, he attended a two day DITAC meeting in Karlsruhe in Germany, which is being sponsored by the Australian Government. The aim of the workshop was to investigate what opportunities exist for collaboration between German and Australian Universities.

He arrived at Stanford University on November 10, where he has been awarded the Shimizu Visiting Professorship. The professorship is made possible by means of an endowment contributed by the Shimizu Corporation of Tokyo, Japan. Selection is made from individuals who have made distinctive contributions to civil engineering and related areas. The main purpose of the stay will be to try to make headway on the textbook "Environmental Fluid Dynamics".

Another purpose of the visit is to catch up with the latest advances in numerical computation and to see how this relates to the stratified probe problems being investigated at the Centre for Water Research. He will return to Perth on February 15th.

David Hamilton will take up the position of Lecturer, Water Quality Engineering on January 1, 1993. David is currently a Research Associate at the Centre for Water Research. He has been involved in an interdisciplinary study involving the physical, chemical and biological components in the design of water quality model for predictions of phytoplankton, nutrient and oxygen concentrations in reservoirs.

His research interests are in water quality and light penetration in lakes, mathematical modelling of water quality in lakes and reservoirs and modelling sediment resuspension in shallow lakes.

David's first task will be to set up a water quality laboratory and design a teaching strategy to provide a broad water quality basis for students. Lectures related to water quality will be closely integrated with practical application of water quality monitoring and assessment techniques. The water quality laboratory with nutrient and phytoplankton analysis facilities will be operational by the first semester of next year.

David plans to develop and enlarge links with the chemistry and biology departments at UWA and other Universities as part of his teaching and research programme.

Zoology Group, University of Western Australia

There is not very much happening at the moment, things go on as normal. Pete Davies and Belinda Murray are both finishing their theses.

Edith Cowan University

Pierre Horwitz is settling in at Edith Cowan University, Joondalup campus. He is currently involved in an investigation at Lake Jandabup looking at the relationship between invertebrates and vegetation communities, Post Graduate student Kim Richardson is also involved.

The second project he is involved in is a ABRS project in collaboration with Brenton Knott from UWA on Janirid (Isopod) systematics.

Darren Ryder is another Post Graduate student working with Pierre, this time on a project dealing with the processing of organic material in wetlands in relation to water level changes.

Conservation And Land Management

Stuart Halse and Russ Shiel have been investigating microinvertebrates at Lake Gregory, while a bit closer to home they are studying microinvertebrates in Ellen Brook-Twin Swamps.

... and here we go for Part 2 of the WA epic e-mail...

Wetlands group, Murdoch University

Well everyone's settling after the break and the students are now back. Kerry Trayler has started her PhD it is as yet untitled but will be on something to do with streams in forests and the affect of logging. Declan has survived his trip to Ireland, only just after kayaking down the Liffey and taking several oral samples and on the way home contacting awful lurgies. Lorna is currently sampling again at Millstream and braving the flooded Kimberley. There are several new faces in and around the lab., Andrew Duckworth is undertaking an Honours project with Jenny Davis on the estuarine processes in the Swan River and its effect on the benthos (or something similar) and Rob Donahue is working with both the Waterways Commission and Murdoch on the *Hydrocotyle* problem in the Canning River and the effect it has on invertebrates.

Siripong Pornpitat has successfully completed his Masters and is back in Thailand were by all accounts he is doing well. Poranee Utayopas is back from Thailand after doing some sampling in her homeland over the break. Congratulations to Jo Buckee who gave birth to a bouncing baby boy, Oliver, on the 3.2.93. and Jane and Ivor Grown who had a baby boy in the middle of February.

Faye Cheal is also back, temporarily, monitoring the macroinvertebrates of four lakes in an area currently being developed for housing. This is before she leaves to sail to New Zealand.

Conservation And Land Management

The news from CALM is that Andrew Storey is leaving to work at Ok Tedi in Papua New Guinea and Peter Davies from UWA is helping Jim Lane for 5 months looking at suitable planning ideas for buffers around wetlands.

Water Authority

Shirley Balla's PhD thesis entitled "Managing wetland water and nutrient levels to conserve the aquatic fauna." has been accepted. Volume 6 of Wetlands of the Swan Coastal Plain will be available soon its title is "Wetland classification on the basis of water quality and invertebrate community data." If you would like further information please contact Shirley Balla (09) 420 3242 or fax 420 3176.

TASMANIA

Correspondent: Leon Barmuta, Department of Zoology, University of Tasmania, G.P.O. Box 252C, Hobart, 7001; e-mail: Leon.Barmuta@zoo.utas.edu.au.

University of Tasmania at Hobart

Your exhausted co-editor has spent summer marking things, preparing for and conducting the ever-popular Field Zoology course, and forlornly looking at two uncompleted research proposals. Meantime his faithful person-servant, Dave Oldmeadow has tried to count still more blackflies on bricks at Liawenee. Unfortunately the faithless little bastards failed to materialize for the first time ever, so we have suddenly become terribly, terribly interested in benthic algae instead. Several artificial stream channels are being readied for placement in an unsuspecting farmer's irrigation channel. The purposes of these nefarious activities will only be revealed after we've got the results. Belinda Robson continues her successful Ph.D. work examining benthic grazing interactions in habitats of differing complexities: she's trying to convince us that she's doing landscape ecology on a scale of centimetres.

And of course the academic year has started again. Robert White is supervising David Crook on a project looking at movements of native fishes using all sorts of high-tech tagging devices. David Ritz is supervising Jackie Griggs on zooplankton in eutrophic lagoons, and Anna Minchin on the biochemistry of rotifers. David has also been successful in securing an industry post-grad scholarship to examine zooplankton harvesting from sewage lagoons at Werribee in Melbourne; David Cartwright from what used to be MMBW (God knows what it's called now) is also involved. So that's our contribution to the general northward drift of graduate students noted by our NT correspondents.

Inland Fisheries Commission

From: Paul Humphries

Well, Paul seems to be preoccupied with Max. Unlike his father, Max is well-behaved, docile and goes to be at a reasonable hour. It can't last.

AUSTRALIAN CAPITAL TERRITORY

Correspondent: Michele Barson, Bureau of Rural Resources Science, Department of Primary Industries and Energy, somewhere in Canberra.

Editorial note

Well, we thought we might hear from this lot this time round. Something about a CRC perhaps? You know, the stuff you spray on the sorts of cars your editors can afford to make them start, destroy ozone layers, etc. Anyway, we're not jealous, just hoping the Coonawarra & Margaret River sub-programs were not cut from the budget. D'you think the Minister noticed, Tim?

University of Canberra

From Richard Norris

News on the CRC For Freshwater Ecology

[HA! See? Told ya! - Eds]

Peter Cullen and others in the CRC are to be congratulated for the effort they put into gain Federal government and industry funding for a Cooperative Research Centre for Freshwater Ecology. This Centre brings together research groups at the University of Canberra, Murray-Darling Freshwater Research Centre, Monash University, CSIRO Environmental Mechanics and Division of Water Resources, and the Fisheries Research Institute. Also involved in management of the CRC are the Murray-Darling Basin Commission, Melbourne Water, ACT Government and the Albury-Wodonga Development Corporation. Also associated with the CRC are the ACT Electricity and Water and the Water Board (Sydney). [Is there anyone not in it? - Eds].

CRC programmes areas include; flowing waters, standing waters and eutrophication, floodplain and wetland ecology, water quality and ecological assessment, urban stormwater management, fish ecology and management and, education and technology transfer.

[... yes, and? What about *wine*, Minister? You don't expect us to drink *water* all the time?- Eds]

At the time of writing the election had just been called before final contracts for the CRC had been signed. We can only hope that a potential change of government does not jeopardize the CRC.

The Water Research Centre at the University of Canberra has administered four studentships over the 1992-93 summer. These students gain work experience and course credit, reaping real benefits from their labour. The NSW Department of Water Resources has funded two projects in the Kosciusko area. Lynne Smith is working on water quality in the streams around Charlotte Pass, Perisher and Smiggins Hole ski resorts. Nickie Ward is assessing land use impacts on water quality in the Mowamba and Wollondibby Creeks. The Water Research Centre has provided funds to support Matt Allanson to complete work reassessing the impacts of Captains Flat mine on the Molonglo River 10 years since the last biological work. Wayne Robinson is receiving support from the Territory Planning Authority to assess the effectiveness of the Upper Stranger Pond water pollution control pond which forms part of Canberra's system of ponds and lakes to protect the Murrumbidgee River.

The Territory Planning Authority has provided funds to the Water Research Centre which will support Sean Grimes to undertake an honours project. The project will investigate the ecological bases to rapid biological assessment of water quality and test the efficacy of the approach over much of the ACT.

The Water Research Centre has had a long and mutually beneficial relationship with Kosciusko Thredbo Pty Ltd., performing research on the Thredbo River. Glen Brown is undertaking a Ph.D., funded by the company, on the relationships between nutrients, algal growth and invertebrates. After much discussion with NSW National Parks and Wildlife Service and other bodies, and several design difficulties, Glen's experimental channels are now ready to be set up in the river.

Wendy Stevenson and Richard Norris have been retained by the NSW NP&WS to draw together the considerable amount of monitoring and research data on the Thredbo River to define the condition of the river. This definition will include a good deal of biological data and will form the basis for comparison of future monitoring. This approach could be more widely used in Australia.

Australian National University

In the Department of Geology, P. De Deckker continues working on the salt lakes of Victoria, and more specifically on the history of the salt lakes of relevance to climatic change. This work is in collaboration with Dr Allan Chivas of the Research School of Earth Sciences at ANU and Mr Peter Gell of the Geography Dept. at Monash University. Peter himself is very much involved in the study of modern saline diatoms. Patrick is also supervising the thesis of Ralph Ogden who is studying the history of billabongs in the vicinity of Albury. His work is partly funded by the Peter Till Laboratory. Another Ph.D. student of Patrick's, Mr John Magee, is studying the evolution of Lake Eyre which has an excellent record of deposition (of a megalake phase) for the last interglacial -

120,000-80,000 years BP. Patrick, together with a group of ANU colleagues is organising the 6th International Symposium of Palaeolimnology to be held in Canberra in April. This conference is partly sponsored (and funded) by ASL. Lynda Taylor just arrived at ANU in the Geology Department to start a Ph.D. on ostracods and saline environments. Lynda recently completed an M.Sc. on ostracods and the effect of road salt on aquifers in Ontario carried out at the University of Toronto under the supervision of J. Ritchie and DD Williams.

Patrick co-authored a book entitled *Quaternary environments* (which has a chapter on rivers and lakes) with Martin Willimas, Dave Dunkerley, Peter Kershaw and Tania Stokes. It is published by Edward Arnold.

Bureau of Resources Science

From Michele Barson

Gina Newton, Fisheries Branch, has won a Department of Primary Industries and Energy Staff Development Award which will enable her to take 6 weeks leave to finish writing her PhD on Estuarine Zooplankton, Ecology and Hydrology of the Hopkins River.

Tilzey writes that the Bureau is currently conducting a review of the disease risks associated with the importation of aquatic organisms. Although addressing possible disease problems associated with the freshwater ornamental fish trade, this review does not encompass ecological risks. Hopefully, the need for an ecological appraisal will be flagged in the final review document. The MDBC Fish Management Advisory Committee will be meeting in March to assess NRMS funded fisheries projects in the Basin. The question on everybody's lips is, will Biggles continue to fund Algae after March 13th?

STOP PRESS The Coalition have recently announced that they will be honouring the funding promises made in the PM's Environment Statement. Michele Barson has been preparing a review of trends in water resources for BRS forthcoming publication "Trends in Natural Resources". Thanks to those ASL members who downed tools to bring her up to date on biological issues. Those who have been around for longer than they may wish to admit might like to know that Leo Devin (of AWRAC, MDFWRC etc etc Fame) is busy engineering the new National Regulatory Authority for Agricultural and Veterinary Chemicals.

VICTORIA

Correspondent: Barbara Downes, Dept. of Life, the Universe and Everything, Monash University, Clayton 3168. (03) 565 5658 FAX 565 5613

They say that truth is stranger than fiction, but us Monashians are beginning to feel as if we've become trapped in an episode of Yes, Minister. Approval for a Cooperative Research Centre, of which we're a part, was granted late last year. However, the paperwork is now piled up on the Attorney-General's desk, and there it will stay until after the election - by which point, the documents may be used to break in new paper shredders, for all anyone seems to know. I suppose it doesn't pay to become too cynical about these things, but.....

Nevermind, our limnological blood inevitably rises as the summer field season comes upon us. Downes/Lake/Schreiber paving contractors re-paved the Steavenson River preparatory to starting another experiment on species diversity. Our bricks promptly disappeared. A digging expedition revealed that a majority of them were under a half metre of stones and gravel - a fairly profound illustration of how even Summer spates can roll stream beds around. Last year's experiment, involving some 130 bricks, revealed that the heterogeneity of stone surfaces and algal succession have profound effects on choice of a home by stream bugs. This time we want to examine the effect of a red alga, *Audouinella hermannii*, on species richness and assemblage structure. Attempting to remove this alga without otherwise disturbing the epilithon has seen us shaving stones with Bic disposables, but the results haven't convinced us to give up our day jobs and become barbers just yet. And if you think that sounds like a lot of bulls**t, let me tell you it ain't nothin' compared to the quantity of real bulls**t being deposited on the stream banks by 6 fine bovine specimens, who've decided (can bulls decide?) to wallow around near our site. A couple of bullish encounters has convinced us to avoid taking the red ute on field trips, having no wish to explain to our lab. manager how we managed to get horn-sized punctures in the bodywork.

Our other group of paving contractors, Quinn/Lake/Schreiber, have been pursuing more novel forms of torture, by suspending bricks from stakes with fishing line in Lake Purrumbete. The overt explanation is that this is a way of testing colonization rates of animals with differing dispersal abilities, but rumour has it that Sam simply wanted, for once, to be 100% confident of successfully catching something on the end of a fishing line. Bravery awards are also being nominated for those who actually ventured to take samples from a boat skippered by Sam in the middle of a lake on a moonless night.

A.R.C. funding has seen 2 related projects also get off the ground - Sabine Schreiber and Gerry Quinn will pursue that pesky introduced snail, *Potamopyrgus*, which has snuck into

many Victorian water bodies and may be displacing native grazers, and Alena Glaister and I will be looking at whether body sizes of stream bugs are related to the complexity of their habitat. These 2 grants have enabled us to offer Alena a full-time position in the lab., which is very overdue recognition of the valuable help she has given on a multitude of projects.

Among the postgrad. students, Shane Brooks has finally exhausted all avenues of displacement activity and begun sorting bug samples taken before, during and after floods in the Lerderderg River. Jacqui Jordan is well into a project looking at how yabbies may or may not affect macrophytes in billabongs. Jac has confused many onlookers by covering the department's Jock Marshall Reserve with kiddie swimming pools filled up with neatly-tied bunches of leaves and twigs. The yabbies, however, preferred to eat gunge, causing the annunciation of a few words beginning with s and f. Maria Vazquez is working on the biology of hydrobiosids (predatory trichops) and has now sucked quite a few of them out of the Cumberland River, revealing "hot spots" of predatory activity in riffles and runs. Ben Gawne finished up his Ph.D. thesis on the grazing proclivities of *Agapetus* and has left the Great South Land for a postdoc. at the University of Lincoln in Nebraska, where he'll probably look at effects of sunflecking on periphyton growth. One wonders at the hurry considering he arrived just in time for a full Nebraskan winter. We're also concerned that Ben may actually be involved in teaching caddis to attach bombs to shipping, as the project is funded by the U.S. navy.

Over at the Museum of Victoria, Richard Marchant and Peter Lillywhite have set a new world record: 5 replicate kick samples taken at 15 different riverine sites to gain precisely one aquatic insect, a tipulid, and that the most widespread species in the world. The place is, of course, the sub-Antarctic Macquarie Island. Besides the usual horrors, like nematodes, harpacticoids and the odd flatworm, Richard and Peter did get some interesting isopods that are related to the marine genus *Iais*, which, until recently, were thought to be all ectoparasites. They also got quite a few freshwater worms - speaking of which, Adrian Pinder is due back from the U.S. around late June. For those who didn't know, Adrian has been learning wormology with Ralph Brinkhurst. The funding for the project has been renewed and so Adrian will be at the Museum for about a year working up their material and producing some keys. Good news for those who've been suffering from Oligochaetitis for a few years.

Of course, most of you probably know that a new verb has entered the English language: to be jeffed. The meaning of this new word should become clear from this missive from Leon Metzeling at the E.P.A....The E.P.A. has been afflicted by the changes being wrought on the Victorian Public Service. Across the E.P.A., about 40 staff positions have gone, about 12% of what we used to have. And the March mini-budget is still to be announced! Needless to say, morale is not the greatest. The Freshwater Studies Group has lost its coordinator, Graham Rooney, to Policy and Alison Pouliot has left to start a Dip. Ed.

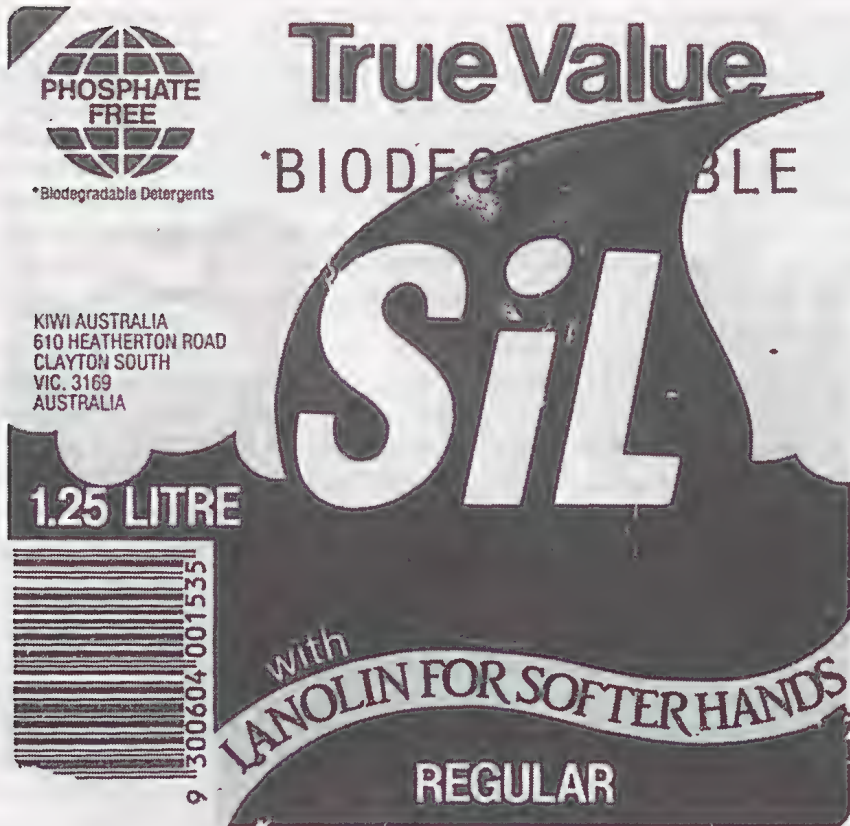
Alison was working on sewage impacts on an alpine stream and community based monitoring.... Alison's work will somehow be continued by our leaner, meaner, restructured, reviewed, more businesslike and client-focused organization. David Tiller hopes to finish the alpine work soon. He is also continuing the lower Goulburn River studies with Fiona McKenzie-Smith, looking at the impact of the Shepparton Water Board. Fiona and Leon Metzeling are still working on fish farm effects on upland streams. When sampling downstream of one fish farm on the Rubicon River, the river suddenly turned a lovely brown colour, thanks to the desilting of a small hydro dam in the headwaters. Leon, Fiona and Tim Doeg (a renowned expert in sediment impacts who works in the Department of Constant Name Revisions) are planning to take advantage of this situation by sampling the benthic and the drifting invertebrates some time in the future. David and Leon have also been paddling around on Blackburn Lake, an urban lake in Melbourne, sampling the sediments, water quality, macro- and micro-invertebrates and algae. Leon has also been monitoring the recovery of highly polluted Kororoit Creek, following the removal of all licensed discharges. The water quality is certainly much better, but there is a long way to go.

Finally, a few words from Garry Bennison at the State Water Labs. Vince Pettigrove continues to work jointly with Kath Bowmer from C.S.I.R.O., Griffith Laboratory, on chironomid deformities. Their project aims to measure the movement of pesticides used in rice agriculture and to determine the impact of said pesticides on larval chironomid morphology. Phil Mitchell, Lance Lloyd and Kumar Eliezer are working on a survey of the Upper Yarra River for Melbourne Water. Invertebrate, fish and algal populations are being monitored to collect quantitative baseline data prior to the construction of a proposed sewage treatment plant at Dalry Road. Peter Cottingham, Joanne Harrison and Garry are working furiously on the 1st draft of a report reviewing the nutrient and algal status of Victorian inland surface waters. This report will be combined with other contributions to form a draft Nutrient Management Strategy Document for Victoria, which is being overseen by the Victorian blue-green algal project team. Jenny Lidston and Garry are currently trialling the algicidal properties of the aquatic herbicide ACROLEIN on cyanobacteria in Shepparton Sewage Lagoons.

PAPUA NEW GUINEA

No specific news from the north, but in a letter to the ASL, there are the magic words - "can you advise the editors that I may be persuaded to be the PNG correspondent during my stay up here...." Well, Ian Roderick, of the Environmental Department, OTML, PO Box 1, Tabubil, Western Province, PNG ... consider yourself persuaded. Any-one with news on the PNG front can now send their missives to Ian in time for the next Newsletter - welcome aboard Ian.

Hey, if SIL can supplement itself funding-wise by marketing a brand of dishwashing liquid (with lanolin for softer hands), why can't the ASL come up with a similar scheme?



As the correspondent who brought this to our attention says: "Where is our marketing branch, our office of entrepreneurial limnology?" Where indeed? Perhaps ASL dolphin-safe self-raising flour, ASL biodegradable puff pastry, ASL ozone-friendly toilet paper. All suggestions gratefully received.

ALL THE NEWS, VIEWS AND OTHER THINGS

RE-WRITING THE VICTORIAN CHAPTER.

Sick of finding out what is happening in a nearby suburb, or even your own department, by reading it occasionally in Prattle, Rumour and Scuttlebutt? If you are interested in finding out what is happening around you, or you just want a good (?) night out, then let me know if you can help in kick-starting the Victorian Chapter of ASL. The main problem is finding a good venue. Previous pubs frequented are no longer arranged in a format suitable for meetings or are gay bars (although no one explained why this is a problem for us). If you can suggest a reasonably central venue of any sort, even a restaurant close to a suitable meeting room, please let me know. Almost all other suggestions also gratefully received. I can be contacted at 5 Mt Helen Ave, Mt Helen 3350, phone (053) 413864.

Ros St Clair.

CHANGE TO THE CONSTITUTION

Not again I hear you say! Recently I noted that the society's rules (the Constitution) when dealing with categories of membership do not include a category for institutional members. Thus I propose the following statement should be inserted in the section that deals with membership:

" (4) Institutional members who shall be libraries and scientific institutes, who shall pay such annual subscriptions as shall be fixed from time to time."

This proposal will be put to members at the next AGM for approval and is supported by the Treasurer (M.Hart) and the President (L.Barmuta). It is being publicised here to provide members with three weeks' notice of a proposed change to the Constitution, as currently required.

R.Marchant, Secretary.

MONITORING RIVER HEALTH INITIATIVE

(Money Alert!! Money Alert!! - Eds)

Early this year, State and Territory agencies and research organisations were invited to submit proposals for consideration for funding as part of the Monitoring River Health Initiative being coordinated by the Commonwealth Environmental Protection Agency (CEPA). The initial approaches from CEPA asked for proposals with an emphasis on urban catchments. This has now been broadened to include water bodies in rural and natural (sic) catchments. CEPA are still accepting proposals. Proposals should relate to scientific water quality monitoring, particularly biological monitoring but they will consider other types of monitoring. The initial proposals don't need to be very detailed, but should outline the work to be done, its importance, the organisation(s) or individual(s) involved, duration and funding sought.

Proposals should be addressed to Dr Ian Lambert, Director of Standards and Industry Guidelines, CEPA, PO Box E305 Queen Victoria Terrace ACT 2600 and should reach him by 31 MARCH 1993.

Michele Barson, BRRS

NEWS ABOUT REGULATED RIVERS

The international journal *Regulated Rivers: Research & Management* is published by John Wiley & Sons in the UK, and has been going strong now since 1986. The journal considers papers from virtually every discipline that bears upon the environmental effects of flow regulation. The proportion of Australian contributions over the last seven years or so is a little under 10 percent, which is impressive given the dearth of people working on regulation.

The journal is now listed by *Current Contents (Agriculture, Biology & Environmental Sciences)*. This should attract more subscribers and contributors.

If you have material that you would like considered by the journal, or any related questions, contact the regional editor, Keith Walker, at Department of Zoology, University of Adelaide (fax (08) 223 5817, email: kwalker@g.adelaide.edu.au).

Keith Walker

ASTACOLOGISTS UNITE

Being in Tasmania, the crustacean cradle of Australia, one of your editors could not resist giving additional prominence to the **10th Symposium of the International Association of Astacology**, 10-15 April, 1994, Adelaide, South Australia.

Registration will be in the vicinity of \$300, and special package deals including accommodation will be arranged. The venue is the swish Ramada Grand hotel on the beachfront at Glenelg. And of course there will be post-conference crayfish tours to exotic locations such as the marron infested southwest of WA, to Melbourne, to Brissie (for the redclaw and beaches, so we're told), or sunny, sub-tropical Tasmania to have limbs severed by savage *Astacopsis*.

So, tarry no longer! Contact: Dr Michael Geddes, Department of Zoology, University of Adelaide, GPO Box 498, Adelaide, S.A. 5001; fax (08) 223 5817.

ECOLOGY INSTITUTE PRIZES 1993

The Ecology Institute is calling for nominations for its prize for excellence in ecology for 1993. This year it's the turn of the terrestrial ecologists. The winner gets a prize of \$5000, but has to write a short book - so you may not wish to get nominated. Alternatively you might want to nominate someone you don't like particularly. Whatever, they should have achieved a high level of excellence in ecological research, and previous gong winners include Tom Fenchel, E.O. Wilson, Gene Likens, Robert "keystone" Paine, Harold Mooney, and Robert "do-it-using-regression" Peters. So, you'd be in august company if you scored one of these.

In addition, there is another prize called the IRPE for young (<40yr) ecologists who have published "uniquely independent, original and/or challenging research representing an important scientific breakthrough. You only get \$750 for that one, which represents about 6.8 SVGH (superior vintage of Grange Hermitage) units by our calculations.

Anyway, if we keep carrying on like this, we'll get sacked before we resign. This is all terribly serious stuff, folks. Nominate your geniuses today by writing to: ECI Jury 1993, c/o H. Mooney, Department of Biological Sciences, Stanford University, Stanford, CA 94305-5020, U.S.A.

A CYANOBACTERIAL WORKSHOP YOU HAVE MISSED

...if you didn't go. Your overworked editors got the flier for the **Blue-green algal blooms - New developments in research and management** symposium too late for inclusion in the last Newsletter. Need we hint to the organisers about the imperative nature of getting things to editors by the deadline? Of course not! They'll do much better next time.

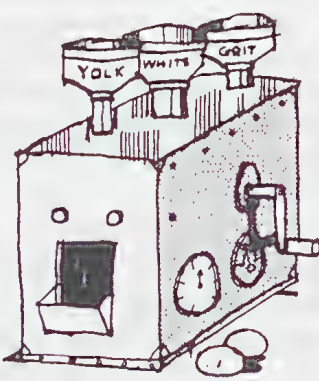
Anyway, it was co-organised by the Australian Centre for Water Quality Research (which has an even sillier logo than ours) and the University of Adelaide, and had all sorts of megastars addressing the multitudes such as Geoffrey Codd. Even George Ganf got to talk. If you did miss this conference and would like to know what was said, write to Blue-Green Algae Symposium, ACWQR, PMB Salisbury Post Office, Salisbury, SA 5108.

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60 MINUTES

31st Annual General Meeting of the ASL Inc; Bronte Park, Tasmania, 26 April 1992.

The meeting started at 4.35pm (p=proposed, s=seconded)

1. Agenda was adopted (p. M.Barson, s. A.McComb)
2. Apologies: M.Hart, P.Osborne, A.Arthington, S.Bunn, R.Tilzey, R.Buckney, T.Hillman, P.Dostine, S.Lake, J.Roberts, B.Hart
3. Minutes of the last AGM were accepted and there were no matters arising from these (p. J.Davies, s. J.Hawking).
4. The President's report: S.Bunn who is in Canada at present sent faxes to both the vice-president (L.Barmuta) and secretary wishing the society well and hoping that the conference would be successful. (When he returns he may write a report for the newsletter).
5. Secretary's report: The secretary had dealt with the routine mail to the society and there was nothing unusual to report. Three executive meetings had been held during the year - one by teleconference and the other two at the annual meetings (Lorne & Bronte Park). The minutes of these meetings had been or would be published in the newsletter. On behalf of the society the secretary thanked P.Davies and colleagues and L.Barmuta for organising an excellent meeting. This report was accepted (p. M.Barson, s. L.Barmuta)
6. Treasurer's report: This was read out by the secretary as the treasurer (M.Hart) was unable to attend. The society now has 487 members of which 394 were ordinary members, 55 student members, 15 life members and 23 institutional members. A financial report was also presented (reproduced here on page 37). This report was accepted (p. M.Barson, s. B.Pusey).
7. An honorarium of \$1000 for the treasurer was proposed (I.Campbell, s. J.Chambers) and passed with acclamation.
8. The auditor's report (appended) was read out by the secretary and accepted (p. I.Campbell, s. J.Davis).

9. Editor's report: S.Bunn (in his fax to the secretary) reported that he hoped to produce two special publications in the next 12 months. The first was a key to Australian adult Trichoptera which was in the proof stage and would probably be printed on the editor's return to Brisbane. The second was a key to larval Trichoptera which still needed some revision but which ought to be ready for printing by the end of the year. This report was accepted (p. T.Doeg, s. J.Chambers).
10. Newsletter Editors' report: T.Doeg noted that 4 issues had been produced since the last congress and thanked the regular contributors. He asked once again for ideas on how to redesign the cover and he also asked for any suggestions on possible improvements. This report was accepted (p. B.Sorrel, s. I.Campbell). I.Campbell and P.Davies also complimented the editors on the terrific job they were doing.
11. Jolly Award Committee: This year the award was presented to Prof. J.Imberger. I.Campbell (chairman) read out the citation which will be published in the newsletter. This report was accepted (p. S.Halse, s. R.Edwards).
12. Student Awards Committee: P.Boon (chairman) commented on the very high quality of all the presentations given by students. The winners were:
M.Deckker - best poster
S.Brooks - best oral presentation (Ph.D/M.Sc level)
K.Trayler - best oral presentation (Honours level).
This report was accepted (p. A.McComb, s. R.Shiel).
13. Student Travel Awards: This year 5 students (K.Trayler, S.Brooks, S.Blanch, L.Charlton, S.Treadwell) were subsidised by the society so that they could attend the congress and present papers on their work. The committee that assessed the students' submissions consisted of R.Marchant, N.O'Connor and M.Hart. Their report was accepted (p. J.Davis, s. J.Chambers).
14. Door Prize Committee: T.Doeg (chairman of the collective) bemoaned the lack of potential winners at this year's meeting and attributed this to the depressed state of those attending. No winner could be found. (A full report will be given in the newsletter). This report was accepted (p. R.Marchant, s. L.Barmuta).
15. 32nd Congress: B.Pusey (one of the organisers) spoke about the current arrangements. The meeting will be held north of Brisbane at Maroochydore. Accommodation at the venue is \$55 per night for two sharing, \$65 for three sharing and \$105 for a family. A camping ground is also available 20 mins walk

away. The probable dates will be 13-16th April but this will be left to the organisers. A straw vote of members favoured April.

16. Future congresses: J.Davis offered to host the 1994 meeting on Rotnest Is. in a vacated army camp. Sydney or Albury were suggested for 1995.
17. Election of the Executive:
- | | |
|----------------|--|
| President | L.Barmuta (p. R.Marchant, s. T.Doeg) |
| Vice-President | P.Boon (p. J.Hawking, s. R.Edwards) |
| Secretary | R.Marchant (p. L.Barmuta, s. M.Barson) |
| Treasurer | M.Hart (p. R.Marchant, s. K.James) |
- State Members:
- | | |
|--------------------|---|
| Victoria | P.Geraghty (p. I.Campbell, s. J.Chambers) |
| New South Wales | J.Hawking (p. P.Boon, s. B.Sorrel) |
| Queensland | B.Pusey (p. R.Marchant, s. A.Storey) |
| Northern Territory | P.Dostine (p. B.Pigeon, s. J.Hawking) |
| Tasmania | P.Humphries (p. P.Davies, s. B.Pusey) |
| Western Australia | J.Chambers (p. J.Davis, s. A.McComb) |
| South Australia | M.Brownlow (p. F.Sheldon, s. J.Harrison) |
| ACT | M.Barson (p. I.Campbell, s. J.Chambers) |

No other nominations were received so the above were all declared elected.

18. Election of the auditors: R.Marchant proposed that Coles & Co. be elected (s. S.Halse).

19. General Business:

a) SIL Congress in 2001 in Australia: I.Campbell spoke about this. Melbourne has been suggested as the best city in which to hold such a meeting, which would take place in January or February. A proposal needs to be put to the SIL committee in Barcelona at this year's SIL meeting. The Melbourne Tourist Authority will sponsor production of the bid documents. I.Campbell proposed (s. A.McComb) "that the ASL invites the SIL to hold a conference in Melbourne in 2001". This was passed unanimously.

b) International Paleolimnology conference: P.DeDeckker has written to the secretary announcing that the 6th International Palaeolimnology Conference will be held in Canberra on 17-23 April 1993. He encouraged ASL members to attend this meeting. He has also asked for a subsidy from the society to help meet the costs of hosting this meeting. The society agreed some years ago to

provide money for such activities and the new executive will decide on the amount that can be afforded.

c)ASL logo: J.Chambers asked whether the society wanted to change its logo. A unanimous "yes" was heard and some discussion followed. It was generally agreed that any new logo should reflect the diverse interests of the society. Some suggestions had already been sent to the newsletter but it was thought that the most efficient way of obtaining something suitable would be to approach a graphic artist.

The meeting finished at 5.50pm. R.Marchant, ASL secretary.

WELCOME TO SOME MORE NEW MEMBERS

Dr David Hamilton
Centre for Water Research
University of Western Australia
Nedlands, Western Australia

Mr Matthew Denton
Department of Botany
University of Adelaide
Adelaide, South Australia

Ms Kerri Muller
Department of Botany
University of Adelaide
Adelaide, South Australia

Mr Craig Styan
Department of Biology
University of Wollongong
Wollongong, New South Wales

Ms Gillian Dunkerley
New South Wales Fisheries
Sydney, New South Wales

Ms Cynthia Elliot
Living Planet Analysis
Weipa, Queensland

Dr Jane Doolan
Murrumbidgee, Victoria

Mr Michael Shirley
Water Studies Centre
Monash University
Caulfield East, Victoria

Ms Wendy Van Dok
Water Studies Centre
Monash University
Caulfield East, Victoria

Mr Tom Grant
Biological Science
University of New South Wales
Cronulla, New South Wales

AUSTRALIAN SOCIETY FOR LIMNOLOGY
STATEMENT OF RECEIPTS & PAYMENTS YEAR ENDED 31ST MARCH 1992

<u>GENERAL BANK ACCOUNT</u>	<u>1991/92</u>	<u>1990/91</u>	
Opening Bank Balance	\$7,895.88	\$3,141.75	
<u>RECEIPTS</u>			
AIDAB/New Scientist	840.00	-	
Bank Interest	482.70	162.88	
Congress	27,535.50	4,711.26	
CSIRO Journals	4,515.00	4,150.00	
Newsletter/Bulletin	-	56.36	
Subscriptions - Members	8,762.63	5,915.00	
- Students	722.50	260.00	
- Institutions	775.00	85.00	
Transfer from Investment Accounts	4,000.00	10,000.00	
Miscellaneous	76.10	-	
TOTAL	\$47,709.43	\$25,340.50	
<u>PAYMENTS</u>			
Computer & Printer	-	6,003.25	
Auditors Fees	330.00	320.00	
Bank Charges	272.93	67.81	
Congress	24,884.45	4,126.00	
CSIRO Journals	4,540.00	3,880.00	
F A S T S	2,137.00	700.00	
Honorarium	1,000.00	500.00	
Jolly Award	250.00	-	
Newsletter/Bulletin/Teleconf.	5,251.33	3,645.80	
Petty Cash	100.00	100.00	
Stationery/Printing/Office Supplies/Postage	2,323.68	985.89	
Student Subsidy	890.00	-	
Travel Expenses	532.46	-	
Miscellaneous	25.50	45.50	
Student Prize	50.00	50.00	
Insurance - Computer	163.13	162.12	
TOTAL	\$42,750.48	\$20,586.37	
Closing Bank Balance	\$12,854.83	\$7,895.88	
	=====	=====	
<u>INVESTMENT ACCOUNTS</u>			
	<u>A N Z Trustees</u>	<u>A N Z</u>	<u>N A B</u>
	<u>Common Fund</u>	<u>Term Deposit</u>	<u>Dep at Call</u>
Opening Balance	\$35,623.61	\$782.81	\$4,144.57
Net Interest Received	2,008.41	147.49	193.35
Net Bank Transfers	(4,000.00)	-	-
Closing Balance	\$33,632.02	\$930.30	\$4,337.92
	=====	=====	=====

CONFERENCES AND WORKSHOPS

****** denotes new listing.

The 5th International Lake Conference on the Conservation and Management of Lakes, Stresa, Italy, 17-21 May 1993. Organised by ILEC (International Lake Environment Committee Foundation). Contact R.M. Societa di Congressi s.r.l., Via Ciro Menotti 11, 20129 Milano Italy.

23rd Annual Congress of the Australian Society for Limnology, April 14-16, Marcoola, Queensland. No further comment.

Towards Biodiversity and Conservation, 12-16 July 1993, Brisbane Qld. Call for papers on the conservation and diversity of invertebrates including protists. This biodiversity conference promises to emphasise invertebrate issues as well as the more usual ones. Contact: Dr Glen Ingram, Queensland Museum, PO Box 3300, South Brisbane, Qld 4101.

Malvern International Conference on Geological and Landscape Conservation, 17-24 July 1993, Great Malvern, England. A conference about the conservation of geological and geomorphological features. Contact: Margaret Phillips, Teh Company, St John's Innovation Centre, Cowley Road, Cambridge CB4 4WS, U.K.; Fax +44 223 421158.

3rd International Congress on Medical and Applied Malacology, Camden, N.S.W., 19-23rd October 1993. There will be three general symposia: 1. Economic, medical and veterinary aspects of parasites; 2. Molluscs and agriculture; 3. Aquaculture of molluscs. **One of the proposed excursions is to a "Fluke Infested Property"**. Contact Phil H. Coleman, Division of Invertebrate Zoology, Australian Museum, PO Box A285, Sydney South, N.S.W. 2000; Phone (02) 339 8112; FAX (02) 360 4350.

12th International Symposium on Chironomidae, 22nd- 26th January 1994, Canberra, A.C.T. Contact Peter Cranston, CSIRO Entomology, GPO Box 1700, Canberra 2601; fax (06) 246 4000.

**** International Conference on Groundwater: Drought, Pollution and Management**, Brighton, England, 1-3 February 1994. The conference will examine the whole area of groundwater sustainability and the technical program will cover, quantity constraints, quality constraints and management solutions. Further enquiries to Ms. Jacqueline Watts, Conference Organiser, HR Wallingford Ltd., Howbery Park, Wallingford, Oxfordshire, OX10 0BA, England; Phone: 0459 35381, FAX: 0491 2670, Telex: 848552.



**** 10th Symposium of the International Association of Astacology, Adelaide, Australia, 10-15 April 1994.** Significant events include a tour of wineries, welcoming drinks and buffet, Conference Dinner, a barbeque at the Aquatic Sciences Laboratories ... oh ... and paper sessions. Post conference tours seem to be designed to get as far from Adelaide as possible with trips to Melbourne, Perth, Brisbane and Tasmania. More information from Dr. Michael C. Geddes, Department of Zoology, The University of Adelaide, GPO Box 498, Adelaide, SA. Phone: (08) 2285934, FAX: (08) 2235817, Telex: UNIVAD AA89141.

**** Chemometrics and Environmetrics Meeting CHESM-93, 21-24 August 1993, Bologna, Italy.** Includes sessions on environmental risk assessment, sampling design and a panel discussion on "Environmental statistics for year 2000: directions and needs". Contact Organizing Secretariat, SOGEPACO, Convention and Travel, Piazza della Costituzione 5/c, I-40128 Bologna, Italy; fax +39-51-6375149 or e-mail to cocchi@statbo.cineca.it.

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CONFERENCE REPORT: ASPAB IN SYDNEY

The Xth Conference of the Australasian Society for Phycology and Aquatic Botany was held at the University of New South Wales, from December 6th to 9th 1992. ASPAB is a society that encompasses a wide range of interests in aquatic plants, from pure taxonomy to ecology at the ecosystem level, and from cyanobacteria to seaweeds to vascular plants. Papers at this year's conference reflected this range. Indeed, the participation was impressive: there were some 80 delegates (about half the society), and almost everyone presented a paper. The high level of student participation was particularly rewarding, and the quality of student papers at this conference, as at many others, eclipsed that of many of the more senior members. Although marine research continues to dominate the society, freshwater interests are becoming more conspicuous. Inland wetlands received a good hearing this year, with Margaret Brock's dynamic group from UNE attending (not to mention yours truly!), while an excellent plenary lecture from Gary Jones ensured plenty of interest in the freshwater cyanobacteria. These are some of my thoughts:

(i) Extending the length of the conference and hence having no concurrent sessions was an excellent idea. Being able to attend all the talks, including those not in your own field, was really valuable.

(ii) Senior University administrators, when invited to give the opening address, should at least take the trouble to learn the name of the society before they begin speaking.

(iii) This year we were forced to use the seminar room in the School of Biological Sciences, a rather cramped venue, for the talks. This was because Universities now charge societies for the use of lecture theatres (the jargon for this is "neutral financing"!) I predict that this will lead to further societies abandoning these venues, as we did. Lecture theatres will now receive far less use during University breaks (a waste), except by wealthy societies.

(iv) As an expat Kiwi I was saddened to see the small number of NZ participants (only 3) in this nominally Trans-Tasman society, despite Sydney being a relatively accessible venue. This partly reflects the parlous state of science funding under the current political climate in NZ, but also the ignorance of the senior bureaucrats now in charge there, who have more or less embargoed scientists from attending conferences that don't result in direct publications. This is alarming, given that ASPAB (and ASL)-type conferences are often much more valuable for making contacts, testing your ideas, and initiating new work. The lesson for Australian scientists, soon to vote in a federal election, is unmistakable.

BRIAN SORRELL

BOOK REVIEWS and NEW BOOKS

The Rivers Handbook, Volume 1.

Edited by P.Calow and G.E.Petts, pp i-xi, 1-526. 1992, Blackwell Scientific Publications, Oxford. \$285

Reviewed by Richard Marchant, Museum of Victoria, Melbourne.

A work of this name (and price) is clearly a reference book that libraries rather than individuals will buy. The subtitle, "Hydrological and Ecological Principles", contrasts this volume with Volume 2, "Rivers: Perspectives for Ecologically Sensitive Management" (yet to be published). The aim of this two-volume work, according to the editors, is "to provide a synthesis of scientific knowledge on rivers and to provide the basis for achieving scientifically-sound river management. Volume 1 provides an up-to-date scientific background." In my opinion this volume only partially meets these aims.

The book is divided into four sections: part 1, hydrological and physicochemical characteristics (7 chapters); part 2, the biota (6 chapters); part 3, inputs and pathways of matter and energy (5 chapters); part 4, examples or case studies of research on particular rivers (5 chapters). It is well produced with clear figures, few typographic errors and little overlap (and good cross-referencing) between chapters.

Part 1 consists of chapters on hydrology of both headwaters and rivers as a whole, water quality (physical and chemical characteristics are treated separately), in-stream hydraulics, channel morphology and floodplain construction. The chapters on hydrological analysis are detailed but lucid. Australian readers may, however, find the examples somewhat parochial in that there is little reference to flow regimes other than those that occur in Europe. Both aspects of water quality are very comprehensively treated with discussion of studies from all over the globe. The final three chapters provide useful modern introductions to subjects that are more and more on the minds of biologists and managers: shear stress on river beds, the nature of sediment transport, hydraulic geometry, rates of floodplain development.

The biota section begins with chapters on heterotrophic microbes, algae and macrophytes. These are informative summaries of their fields. Some of the highlights were: accounts of microbial techniques used to quantify fungal populations; details of the factors, including hydraulic ones, that control algal populations and the distribution of macrophytes. The three remaining chapters impressed me much less.

The first of these on invertebrates claims to review "their roles in lotic ecosystem functioning and... their use in monitoring and predicting changing conditions..". Apart from one passing reference, there is no discussion of the extensive macroinvertebrate community studies undertaken in the UK (or NZ or Canada), in which multivariate analysis has been used to predict the invertebrate communities at a site. If these are not shining examples of how to tackle this difficult problem then what are? Things are no better when functional roles are discussed. Some details about estimating secondary production are given but there is no assessment of the numerous published production estimates. Instead, a diagram of energy flow in a stream ecosystem is presented which is based partly on unpublished data! The problems with assigning taxa to functional roles are glossed over and no acknowledgement is made of examples in the literature where distribution of functional groups does not meet with expectations (generated almost entirely from studies on northern temperate streams).

The following chapters on fish and sampling problems also leave something to be desired. Too little is said about the actual ecology and biology of riverine fish and too much space is taken up with detail that is only marginally relevant for this chapter to be a satisfying review. The treatment of sampling problems (the final chapter in this section) is strictly statistical. There is no discussion of other relevant aspects of sampling such as: do organisms evade the sampler; are all habitats occupied by the species being sampled; what is the appropriate mesh size; what is the efficiency of the whole sampling protocol ? Statistical analysis of variation between samples will never be sufficient to solve these dilemmas. The editors would perhaps suggest this type of detail could be found with descriptions of the sampling apparatus, which have been deliberately excluded because they will be found "in specialist textbooks and monographs". I would like to know which publications they have in mind. A review of these non-statistical aspects is long overdue and is a blatant omission from a book such as this.

Part 3 deals with the processes and pathways of matter and energy in rivers. Food webs and species interactions, detritus processing, primary production, energy budgets, and cycles and spirals of nutrients are discussed in separate chapters. I felt most of these topics were capably reviewed (with the exception of the chapter on energy budgets). The idea of food webs as a unifying concept in the ecology of lotic invertebrates is convincingly and comprehensively argued.

The same cannot be said about the contents or tone of the chapter on energy budgets (of fish and invertebrates). Although mention is made of some of the techniques for measuring energy flow, none of the studies carried out in the last 15 years on feeding and assimilation rates or growth and development of lotic insects or crustaceans is discussed. K.R.Allen's classic study on trout production is cited as the source of calculation procedures for estimating secondary production; but other aspects of this detailed study, e.g.invertebrate biomasses and dynamics, fish feeding rates, transfer efficiencies of energy

between trophic levels, are ignored (possibly because Allen's work is much cited but never actually read). Instead we are treated to brief accounts of energy flow through Silver Springs, the River Thames and Bear Brook. These studies certainly demonstrated what was possible by focussing on energy flow. However, the first two relied on many approximations and assumptions; and to cite these two in preference to more rigorous studies, especially those conducted recently, gives the decidedly false impression that nothing has happened since the late 1960s.

The final section of the book concentrates on studies of large rivers: the Rhone, the Murray, the Orinoco, La Grand Riviere (Quebec) and the St Vrain (Colorado). Although interesting accounts in their own right, these chapters seem to me to exemplify few of the principles enunciated in previous sections. This is not surprising since these principles were mostly derived from small temperate streams, yet none of the above rivers could be considered as such.

As an invertebrate enthusiast, I was disappointed with this book and would not recommend it to those looking for a comprehensive biological statement. With the exception of the chapter on food webs, the information on invertebrates is partial and by no means up-to-date. Other topics and biota seem to have fared better, although precious little is said about fish, or other riverine vertebrates for that matter. This book convinces me that scientific knowledge of rivers and streams is now too diverse and extensive a subject for justice to be done to it in a single volume of edited contributions.

New Books

Wetlands

Max Finlayson & Michael Moser (General Editors)

"The International Waterfowl and Wetlands Research Bureau has drawn into a single volume comprehensive information on the status and value of wetlands around the world. The natural functions of wetlands are reviewed; their role in maintaining groundwater, controlling floods, trapping sediments, retaining nutrients and in providing habitat for wildlife and for recreation. This is followed by a continent by continent guide to the major wetlands of the world. This 224 page volume (large format) contains many colour photographs of wetland habitats and examples of major threats and management problems in wetlands.

This volume is available from Max Finlayson at the following address: c/- OSS, Locked Mail Bag 2, Jabiru, NT 0886 for \$46.50 plus postage (\$10.15 for NSW, Vic, WA, SA & Tas; \$9.45 Qld and \$5.20 NT) All profits from the sale of this book go to IWRB (an International organisation registered as a charity under UK law)"

A GUIDE TO KEYS AND ZOOLOGICAL INFORMATION TO IDENTIFY MACROINVERTEBRATES FROM FRESHWATERS IN AUSTRALIA

from an original manuscript by John Hawking

Editorial Note: The following is a heavily edited (the originator of the information will use the term "butchered") version of the "key to keys" presented at the Taxonomy Workshop held at The Murray-Darling Freshwater Research Centre, Albury 9-10 February, 1993. It is designed to inform workers in the field about the most current keys (the primary purpose) and biological information on freshwater macroinvertebrates. What is presented is a list of taxonomic groups and references that deal with them. Note that it is a rough edit of the original excellent manuscript and could do with cleaning up, but who has the time these days? We feel it is important to get the basic information (and space requirements mean that it has to be presented in such an abbreviated form) into your hands as soon as possible to stimulate feed-back (not Fightback) and so it is presented in this form [any errors can be blamed on the editors - remember solidarity Leon - *The Guilty Ed.*].

If you have any more recent, better, or additional information to the ones presented here, or comments on the usefulness of the references dealing with particular groups, please contact John Hawking at MDFRC (that's if he ever gets away from the Byron Bay Blues Festival). Hopefully, a more comprehensive and complete list (with all the additional notes presented at the Workshop) will be published more formally in the future. John Hawking (and the staff from MDFRC) is to be congratulated for putting on another excellent workshop and for putting in the time to compile this list.

HIGHER GROUP TAXONOMY

Williams (1980) provides a useable key to identify the major higher groups (Phylum, and in some groups, Class) of Australian free-living aquatic macroinvertebrates. Other very helpful keys are provided by Pennak (1978), Macan (1964) and Quigley (1977). Additional information is provided by Marshall and Williams (1972).

PHYLUM COELENTERATA - Williams (1980)

PHYLUM PLATYHELMINTHES

CLASS TURBELLARIA

Order Tricladida - Williams (1980); Hay and Ball (1979 - species from the Victorian Alps); Ball (1974a - *Cura*, *Neppia* and *Romankenkius*), Ball (1974b - *Reynoldsonia*); Ball (1977 - *Spathula*). Richardson (1968 - *Bdellasimilis barwicki*).

CLASS TEMNOCEPHALIDAE - Williams (1980)

PHYLUM NEMERTEA - Williams (1980); Gibson and Moore (1971, 1976 - *Prostoma*)

PHYLUM NEMATODA - Williams (1980); Tarjan *et al.* (1977 - American genera); Johnston (1938 - a census of free-living nematodes from Australia).

PHYLUM NEMATOMORPHA - Williams (1980).

PHYLUM MOLLUSCA

CLASS GASTROPODA (Snails) - Williams (1980); McMichael (1967); Iredale (1943); Smith and Kershaw (1979 - south-eastern Australia); Smith and Kershaw (1981 - Tasmania); Walker (1988 - Planorbidae, Bulininae); Boray and McMichael (1961 - Lymnaeidae, *Austropeplea*).

CLASS BIVALVIA (Mussels) - Williams (1980); McMichael (1967); McMichael and Hiscock (1958); Smith and Kershaw (1979 - south-eastern Australia); Smith and Kershaw (1981 - Tasmania); Walker (1981); Hiscock (1951).

PHYLUM ANNELIDA

CLASS OLIGOCHAETA (worms) - Brinkhurst (1971); Brinkhurst and Fulton (1980 - Tasmania) Brinkhurst (1984 - Northern Territory); Brinkhurst and Jamieson (1971).

CLASS HIRUDINEA (leeches) Williams (1980); Richardson (1968a, 1968b, 1969a, 1969b, 1970, 1971, 1972a, 1972b).

PHYLUM ARTHROPODA

CLASS ARACHNIDA

Order Acarina (mites) - Harvey (1989a - unpublished Taxonomy Workshop key); Cook (1986); Cook (1974); Viets (1978); Harvey (1989b - Hygrobatidae, *Australorivacarus*); Viets (1980 - Unionicolidae, *Unionicola*, *Unionicolopsis opimipalpis*); Harvey (1990a - Limnocharidae); Harvey (1989 - Hydryphantidae); Harvey (1987 - *Pseudohydryphantes*, *Tartarothyas*, *Cyclohydryphantes*); Harvey (1990b - Anisitsiellidae); Harvey (1990c - Pezidae).

CLASS CRUSTACEA - Williams (1980); Bayley *et al.* (1967).

Anostraca (fairy shrimp) - Geddes (1981); Geddes (1973 - *Parartemia*)

Notostraca (Tadpole shrimp) - Williams (1980).

Syncarida - Williams (1980); Zeidler (1985 - *Koonunga*); De Deckker (1980 - *Koonunga cursor*)

Isopoda - Williams (1980)

Amphipoda (Scuds) - Barnard and Barnard (1983); Williams and Barnard (1988 - crangonyctoids); Williams (1962 - *Austrochiltonia*); Sayce (1901, 1902)

Decapoda - Williams (1980, p.163); Williams (1980, p.165 - Atyidae); Riek (1953 - *Atya*, *Caridina*, *Caridinides*); Benzie (1982 - *Caridina mccullochi*); Williams and Smith (1979 - *Paratya australiensis*); Fincham (1987 - Palaemonidae); Riek (1951 - *Palaemonidae*); Williams (1980 - Parastacidae); Riek (1969 - *Astacopsis*, *Cherax*, *Engaewa*, *Euastacoides*, *Geocharax*, *Parastacoides*, *Tenuibranchiurus*); Morgan (1986 - *Euastacus*, Victoria); Morgan (1988 - *Euastacus*, Queensland); Sokol (1988 - *Cherax destructor* group); Horwitz (1990 - *Engaeus*) and Zeidler and Adams (1990 - *Gramastacus*); Williams (1980 - Hymenosomatidae); Williams (1980 - Sundatelphusidae).

CLASS INSECTA (Insects) - Williams (1980, p. 186); Lawrence *et al* (1991, p. 24); CSIRO (1991); Merritt and Cummins (1984); Torre-Bueno (1985 - insect terminology).

Order Collembola (Springtails) - Greenslade (1991, p. 259).

Order Ephemeroptera (Mayflies) - Peters and Campbell (1991, p.286); Campbell (1988); Suter (1986 - South Australia); Dean (1987 - south Western Australia); Suter (1992 - Alligator Rivers Region); Suter (1979); Edmunds (1984); Dean (1987, 1988, 1989 - Leptophlebiidae); Campbell and Peters (1986 - *Leptophlebiidae*); Campbell and Suter (1988 - *Leptophlebiidae*); - Alba-Tercedor and Suter (1990 - Caenidae, Alligator Rivers Region); Suter (1992 - *Caenidae*); Suter (1984 - *Tasmanocoenis tonnoiri*); Suter (1986 - Baetidae); Museum of Victoria (voucher key to species of *Baetis* in

Victoria); Peters and Campbell (1991, p.287 - Siphonuridae); Peters and Campbell (1991, p.289 - Ameletopsidae); Peters and Campbell (1991, p.288 - Oniscigastridae).

Order Odonata (Dragonflies and damselflies) - Watson and O'Farrell (1991); Watson *et al.* (1991); Houston and Watson (1988); Hawking (1986, 1991 - south-eastern Australia); Allbrook (1979 - Tasmania); Watson (1962 - south-western Australia); Watson and Abbey (1980 - Northern Territory); Hawking (1993 - "Top End" of the Northern Territory); Stewart (1980 - Amphipterygidae, *Diphlebia*); Theischinger (1982a - Aeshnidae, *Austroaeschna* and *Notoaeschna*); Theischinger and Watson (1978, 1984 - Corduliidae, Gomphomacromiinae).

Order Plecoptera (Stoneflies) - Theischinger (1991); Michaelis and Yule (1988); Hynes (1989 - Tasmania); Hynes 1978 - Victoria); Suter and Bishop (1990 - South Australia); Hynes and Bunn (1984 - Western Australia); Theischinger and Cardale (1987 - adults); Zwick (1979a - Eustheniidae); Theischinger (1983a - Eustheniidae); Hynes (1974 - Gripopterygidae); Theischinger (1980, 1981, 1982b, 1984a, 1984b, 1984c, 1985 - Gripopterygidae); Theischinger (1984c - Notonemouridae).

Order Hemiptera (Bugs) - Williams (1980); Carver, *et al.* (1991); Lansbury (1981); Polhemus (1984); Carver *et al.* (1991); Todd (1960 - Gelastocoridae); Lansbury (1990 - Hebridae); Rimes (1951 - Saldidae); Andersen (1977 - Hydrometridae); Andersen (1975 - Gerridae); Hungerford and Matsuda (1960 - Gerridae); Polhemus (1982 - *Halobates*); Lansbury (1985 - Naucoridae); Polhemus (1984 - Naucoridae); Kormilev (1971 - Ochteridae, *Ochterus*); Malipatil (1980 - Veliidae, *Microvelia*); Andersen (1969 - *Microvelia childi*); Knowles (1974 - Corixidae, *Agraptocorixa*, *Diaprepocoris*); Lansbury (1983 - *Cymatia*); Lansbury (1970, 1975 - *Sigara*); Chen (1965 - *Micronecta*), Wroblewski (1970, 1972 - Corixidae); Lansbury (1974 - Nepidae). Menke and Stange (1964 - *Austronepa*); Lansbury (1975 - Cercotmetus); Lansbury (1974, 1978 - *Goondnomdanepa*); Lansbury (1972 - *Ranatra*); Lauck and Menke (1961 - Belostomatidae); Menke (1960 - *Lethocerus*); Lansbury (1969, 1975 - Notonectidae, *Anisops*); Brooks (1951 - *Anisops*); Lansbury (1964a - *Anisops*); Lansbury (1968 - *Enithares*); Lansbury (1964b - *Paranisops*); Sweeney (1965 - *Anisops* and *Enithares* from south-eastern Australia).

Order Megaloptera (Alderflies, dobsonflies) - Williams (1980, p. 229); Theischinger and Houston (1988); Theischinger (1991); Theischinger (1983b).

Order Neuroptera (Lace-wings) - Williams (1980, p. 230); New (1991).

Order Coleoptera (Beetles) - Lawrence (1992 - MDFRC's Coleoptera Workshop); Lawrence and Britton (1991); Williams (1980, p. 269, 275); Matthews (1980, 1982 - South Australia); Williams (1980, p. 279 - Microsporidae); Britton (1966 - Sphaerius ovenensis); Lawrence and Britton (1991, p.609 - Microsporidae); Watts (1988 - Halipilidae); Ochs (1949, 1956 - Gyrinidae); Lawrence (1992 - Gyrinidae); Davis (1986 - Psephenidae); Watts (1963, 1978 - Dytiscidae); Zwick (1981 - Carabhydrus andreas); Zwick (1979 - Necterosoma susanna); Watts (1964 - Cybister, Homoeodytes and Hyderodes); Zwick (1977 - Hydraenidae, Hydraena); Lawrence and Britton (1991 - Curculionidae); Lawrence (1992 -Curculionidae); Watts (1987 - Hydrophilidae, Berosus); Watts (1990 - Hydrobiomorpha); Watts (1988b - Hydrophilus); Gentili (1980 - Laccobius and Nothydrus); Watts (1989 - Sternolophus); Lawrence and Britton (1991 - Chrysomelidae); Bayer and Brockmann (1975 - American Chrysomelidae species); Kitching and Allsopp (1987 - Scirtidae, Prionocyphon niger); Armstrong (1953 - Pseudomicrocara).

Elmidae (a section all to itself): Carter and Zeck (1929 - Elmidae); Hinton (1965, 1968 - Austrolimnius); Glaister (1992 - unpublished key to larvae for the Coleoptera Workshop, MDFRC, to south-eastern Australia); Glaister (1991 - South Alligator River, Northern Territory); Calder (1992 - unpublished key to adults for the Coleoptera Workshop, MDFRC).

Order Mecoptera (Scorpion-flies, hanging-flies) - Williams (1980, p. 230); Byers (1991, p. 696); Pilgrim (1972 - Choristella philpotti); Riek (1954 - adults).

Order Diptera (Two-winged flies) - Williams (1980, p.232); Cranston (1990 - Nematocera); Colless and McAlpine (1991, p. 737); Zwick (1977 - Blephariceridae); Museum of Victoria (Tipulidae voucher numbers); Colless and McAlpine (1991, p. 740 - Tipulidae); Byers (1984 - Tipulidae); Mackerras and Mackerras (1949 - Simuliidae); Colbo (1976 - Simulium); Davies and Gyorkos (1988 - Cnephia, Austrosimulium); Wharton (1949 - Austrosimulium crassipes, Simulium melatum); Peterson (1984 - Simuliidae); Russell (1990 - Culicidae); Williams (1980, p. 244 - Psychodidae); Colless and McAlpine (1991, p. 747 - Psychodidae); Duckhouse (1966, 1978 - Psychodidae); Teskey (1984 - American Psychodidae); Williams (1980, p. 245 - Thaumaleidae); Colless and McAlpine (1991, p. 747 - Thaumaleidae); Theischinger (1986, 1988 - Thaumaleidae); Williams (1980, p.248 - Stratiomyidae); Teskey (1984 - Stratiomyidae); Colless and McAlpine (1991, p. 755 - Stratiomyidae); Mackerras (1954, 1971 - Tabanidae); Mackerras (1961 - Tabanidae, Chrysopinae); Williams (1980, p. 250 - Athericidae); Teskey (1984 - Athericidae); Colless and McAlpine (1991, p. 753 - Athericidae); Metzeling (1988 - Dasyomma tonnoir); Williams (1980, p. 251 - Empididae); Teskey (1984 - Empididae); Colless and McAlpine (1991, p. 759 - Empididae); Museum of Victoria (Empididae voucher sheets of some species from Victoria); Williams (1980, p. 252 - Ephydridae); Teskey (1984 - Ephydridae); Colless

- and McAlpine (1991, p. 777 - Ephydriidae); MDFRC (Ephydriidae voucher specimens); Colless and McAlpine (1991, p. 780 - Muscidae, *Limnophora nigriorbitalis*).
- Chironomidae** - Cranston (1990 - to genera at the MDFRC's Taxonomy Workshop); Martin (1974 - Tanypodinae); Cranston has produced regional keys, Cranston and Hillman (1991 - Upper River Murray); Cranston (1991 - Alligator Rivers Region, NT); Cranston and Reiss (1983 - Holarctic subfamilies); Cranston *et al.* (1983); Fittkau and Roback (1983 - Holarctic Tanypodinae); Oliver (1983 - Diamesinae); Simpson and Bode (1980); Cranston (1982); Teskey (1984).
- Ceratopogonidae** - Elson-Harris (1990); Elson-Harris and Kettle (1986 - Heteromyiini); Elson-Harris (1987 - Sphaeromyiini); Elson-Harris and Kettle (1985 - Ceratopogonini, *Alluaudomyia*); Elson-Harris and Murray (1992 - Ceratopogonini, *Paradasyhelea* and *Culicoides*); Metzeling (1990 - provisional key to the known voucher species from south-eastern Australia); Colless and McAlpine (1991, p. 746); Peterson (1984).
- Order Trichoptera (caddisflies)** - Dean and Cartwright (1991); Neboiss (1986, 1988, 1991, 1992); Dean and Bunn (1989 - South-western Australia); Neboiss (1982 - South-western Australia), Wells (1991 - Alligator Rivers Region); Dean (1991 - Hydrobiosidae); Wells (1985 - Hydroptilidae); Wells (1978 - *Hydroptila*); Wells (1979a - *Xuthotrichia* and *Helyethira*); Wells (1979b - *Orthotrichia*); Wells (1980 - *Orphninothrichia* and *Maydenoptila*); Wells (1981 - *Oxyethira*, *Gnathotrichia* and *Stenoxethira*); Wells (1990 - Hydroptilidae, Stactobiini); Cartwright (1991 - Philopotamidae); Cartwright (1990a - Philopotamidae, Victoria); Neboiss (1988 - Stenopsychidae); Dean (1984 - Hydropsychidae, *Baliomorpha pulchripenne*); Cartwright (1991a - Polycentropodidae, *Neureclipsis*, *Nyctiophylax*, *Plectrocnemia*, and Genus G and I); Cartwright (1991b - *Neureclipsis napaea*); Cartwright (1991a - Ecnomidae); Cartwright (1990a - adult *Ecnomus*); Neboiss (1991 - Plectrotarsidae); Neboiss (1987 - *Plectrotarsus gravenhorsti*); Dean and Cartwright (1991b - Tasimiidae); Riek (1968 - *Tasimia natasia*); Jackson (1991 - Conoesucidae, Tasmania); Museum of Victoria (Conoesucidae voucher sheets to Victoria); Dean and Cartwright (1991b - Antipodoeciidae); Jackson (1991 - Calocidae, Tasmania); Neboiss (1984 - some Calocidae adults); Neboiss (1991 - Helicopsychidae); Drecktrah (1984 - Helicopsychidae, *Alloecella grisea*); Dean and Cartwright (1991b - Helicopsychidae); Neboiss (1991 - Odontoceridae); Cartwright and Dean (1987 - *Barynema costatum*); Drecktrah (1990 - *Marilia fusca*); Neboiss (1978 - Atriplectididae); Dean and Cartwright (1991b - Atriplectididae); Neboiss (1980 - Calamoceratidae); Dean and Cartwright (1991b - Calamoceratidae); St Clair (1993 - Leptoceridae, MDFRC Taxonomy Workshop); St Clair (1991 - *Notalina*); Morse and Neboiss (1982 - adult *Triplectides*); Jackson (1985 - *Lectrides varians* and *Leptorussa darlingtoni*); St Clair (1988 - *Russobex cuneatus*; Neboiss (1990 - Psychomyiidae); Dean and Cartwright (1991b - Psychomyiidae)

Information on the larvae from the families Kokiriidae, Philorheithridae, Chathamidae, Oeconesidae, Limnephilidae and Glossosomatidae is scarce and the known information is provided by Neboiss (1991) and Dean and Cartwright (1991b).

Order Lepidoptera (Moths) - John Hawking (MDFRC - larval key to 30 voucher species).

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AUSTRALIAN BIOLOGICAL CONTROL LABORATORY (ABCL) United States Department of Agriculture

Damien Burrows of ABCL has kindly donated the following snippet of life in the biological control world. USDA works from ACTFR premises at James Cook Uni and has recently described several new aquatic insects from Australia.....

The aquatic weed, hydrilla (*Hydrilla verticillata*), has become a serious pest of waterways and aquatic ecosystems in the USA, since its introduction there over 35 years ago. This weed is native to many tropical countries, including Australia. From 1985-1989, Dr. Joe Balciunas (University of Florida - USDA) led a project to detect and evaluate potential insect biological control agents here in Australia. This project was based at the CSIRO Davies laboratory, and later, James Cook University, in Townsville, while a satellite laboratory operated out of the CSIRO Long Pocket laboratories in Brisbane. In order to determine the field host-specificity of our candidate insects, we surveyed over 50 aquatic plant species in north and south Queensland, northern New South Wales and the Northern Territory. Many new species of insects were found, including the hydrilla leaf-mining fly, *Hydrellia balciunasi* Bock (Diptera: Ephydriidae) (described in Bock 1990) and numerous weevils belonging to the genus, *Bagous*, including the hydrilla stem boring weevil, *Bagous hydrillae* O'Brien. The fly, whose life-history has been described by Buckingham et al. (1991), and the hydrilla stem boring weevil, whose life-history has been described by Balciunas and Purcell (1991), have now both been released in the field in the USA. The remaining new species of *Bagous* weevils collected during this project, as well as many other new species from Australia, have now been formally described in a recent publication by Dr. Charlie O'Brien (Florida Agricultural and Mechanical University). This publication, (O'Brien and Askevold 1992), also contains the collection records (including host plants where available) for all known identified specimens of these species.

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CHILDREN'S PAGES

PLEA FROM A SYMPOSIUM GOER

Marcus Brownlow attached the following missive to his e-mail to us. If nothing else it gives the impression that Dan Jantzen writes for our little Newsletter.

I am sitting in the eleventh incredibly boring 30 minute 'paper' in two days, nodding my head in somnambulistic time, drowsily wondering how we are going to break this cycle. Head on attack. Get off your larded minds, my fellow scientists.

Now just what right do you have to ask for the attention of 200 people for 30 minutes? It is certainly not to orally repeat what you have written. I can read 3 times faster than you can talk; give me the manuscript, let me read it, and spend 20 minutes asking you the questions. It is certainly not to present prose through extemporaneous babble; you can never orally present it as clearly as you can write it, to mean what you say and say what you mean. It is certainly not to convey 30 minutes of data; I have no hope of remembering more than 3 minutes worth of numbers more than one hour after your talk. It is certainly not to document your research conclusions; you don't have to show me a table with numbers on it for me to believe you when you say that you have found that elephants can eat baobab fruits faster than baboons.

The function of asking for my time is so that you can send me off carrying 30 minutes worth of punchlines that I can use to better understand other people's work, that I can use to improve my own research, and that will inspire me to do things I would never have thought to do on my own. So how can you do all these things?

1. Use no notes. If you, the person who knows more about it than anyone else, cannot remember something for 30 minutes, how do you expect me to remember it more than 30 minutes after the end of your talk? An oral presentation is the antithesis of the archival function of science.

2. If you need a prompter for the sequence of thought presentation, use an aid that is simultaneously perceptible to your audience. Draw them into your train of thought. When that slide pops on the screen that reminds you to now take up the case of seed spitting by horses, you want your audience to get the same reminder; that prepares them for that earthshaking punchline you are going to lay on them. And remember you are talking to a TV generation.

3. Organise your talk by deciding the take-home messages and then dressing them up with those devices that are necessary to make them sink in. It may be a table with a

single enormous number in it, a photograph of a little girl spitting watermelon seeds, or a white slide in the projector that puts you and your depressed face in the spotlight.

4. Never give the same talk twice. Even if you simply have to change the order of the presentation, always have part of the talk totally new to you. If you are bored, so will the audience be bored. Introduce some slop, some error, some slight blur; make your audience work a bit, recover along with you, when you have to back up two slides or repeat a point to state it more clearly.

5. Never tell a lie. You never have to remember what you said then. If you show five slides of five frogs in your study plot, and one of them is of the same species but taken 30 miles away, say so.

6. Never hesitate to simply stop and collect your thoughts, look at the clock, or state that you have simply forgotten the point you were going to make. Go on, it will drop out of the sky 3 slides later.

7. Listen to your audience; watch their faces. And pick out one friendly soul near the front row to become the other half of the discussion you are about to have.

8. Every audience is different. Put your talk together for THAT specific audience. Even if you use the same slides as you would have for another audience, go through a dry run with today's audience in your mind's eye.

9. Never give a seminar on published work unless it is to draw attention to unappreciated or requested material. Your seminar should be on those things that are live and new and fresh to you, right now. Incomplete, yes.

Let your audience in on your research in the fun stage, before you have drained the mystery from the problem. Remember, you don't have to prove to the audience that you know more than they do about the subject; that you do is self-evidenced by your presence. Perhaps the strongest kick you can give your imagination to spot an unnoticed potential solution is to have to face an audience of peers and tell them you don't yet have an hypothesis to test for this baffling problem.

10. Never apologise. We will make up our own minds as to whether to forgive you.

Daniel H. Janzen,
Department of Biology,
University of Pennsylvania,
Philadelphia, Pennsylvania 29204.

PARTY POLITICAL BROADCASTS

By now you'll know the outcome of the elections. However, at great personal risk (from death by boredom) your editors managed to extract these informative statements on water policy from highly paid but ignorant minions of the major parties. See if you can guess which party was which. First prize is an untenured, one-year Academic A position at a new, as-yet-to-be established provincial campus of a university teaching aquaculture to nursing students who'd rather be doing a TAFE welding course.

Party A

Water? Water! Well everyone know it comes out of taps. Which we think is a good thing really. Very useful things, taps. I'm not sure of the details of how they work, any more than I'm sure of the details of what my accountant does [emits uneasy laugh], but I'm sure it's all legal and above board.

But to go into it in a bit more depth, and I'm sure this is all in the document if you look hard enough, the basic idea is that taps sort of deliver water. Yes, to the marketplace. Turn them on, and water comes out; turn them off and it stops. They respond to market demand: perfect, level playing-field machinery. I mean if you get thirsty, work up a sweat, say on an exercise bike (without falling off, snigger, snigger), or get the Ferr... er, car dirty, then you have created a *demand* for the stuff that comes out of taps - what's it called again? Water! Yes, that's the stuff, water. And you can *satisfy* this demand by turning on one or more taps. Simple really. Yes, we're all for it. Vote for us and vote for taps. There now, does that answer your question?

Party B

Well, of course we're right behind the last speaker on this one. I mean we're like *that* eh? [attempting to cross fingers in front of cassette recorder which he as clearly mistaken for a TV camera]. But the Rural User does have special problems [aside] Where are my notes, Beryl? [Reading] This is another one of those pressing issues that the Government has wilfully neglected the special needs of rural and regional Austraylia. It is time to flush Labor down the plug hole of history.

Did you get all that? Quite imaginative, don't you think: plug hole, water. See the connection? I think the viewers will like that, eh?

Party C

Ahhhmmmm..., errr..., yes. Water has always struck a deep chord in us all, like forests do. I can talk some more about forests if you like...

Party D

Water, as we all know is part of the envirmint, er, envriome... - excuse me [takes deep breath] en-vir-on-ment. And as such is um..., much less interesting than having a stoush with pusillanimous little dweebs whose backsliding, slime-ball policies make bluegreen algae look like a Ceasar's Salad in Acland Street - or Bankstown, rather.

Anyway, since you asked, we do think water is Important, but as you're aware we have an impeccable record vis à vis the aqueous medium because... well, just look at our record. I mean, ten years ago, son, *ten years* ago under a Fraser government there was one of the biggest droughts in history. Huge drought, *humongous* drought. Sheep dying, trees dying, Ash Wednesday: appalling mess. So in we come and down comes the rain. A summit or two, a quick accord, and the heavens opened. And they haven't closed since. So there you have it, son, a clear choice, a *very* clear choice: do I have to spell it for you?

Party E

"Water, Water everywhere And not a drop to drink." What a mess, eh? What a mess they've made of it. Salinity, blue-greens, sewage, pollution, pesticides, pulpmills, poisons, woodchips, duck hunters; the list goes on and on and on and on and on and on and on. "And who's keeping an eye on all this?", you ask. Us. That's who. Us. Watchdogs, that's us. Keeping the bastards honest. And we'll keep watching. But if you'll excuse me, I have to go and chair a committee on exercise bicycles in the House gym or something. Just remember that we have a proud history of watching, so don't go voting for any green clot who thinks they know all about the environment, okay?

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CONSERVATION AND
NATURAL RESOURCES

Flora and Fauna Guarantee Act 1988

NOTICE OF THE PREPARATION OF THE DRAFT FLORA AND FAUNA GUARANTEE STRATEGY UNDER SECTION 18 OF THE ACT

The Draft Flora and Fauna Guarantee Strategy was prepared in September 1992 and public comment is now invited. The document is a draft only and may be inspected at:

- Department of Conservation and Natural Resources
Sales Information Centre
Ground floor
240 Victoria Parade East Melbourne
Hours 10.00 a.m. - 4.00 p.m. weekdays
- All Regional Offices of the Department of Conservation and Natural Resources.
Hours 9.00 a.m. - 4.30 p.m. weekdays.

Copies of the Draft Flora and Fauna Guarantee Strategy can be obtained from the above locations.

Submissions, in writing, on the draft Flora and Fauna Guarantee Strategy would be welcomed and should be sent to:

Acting Secretary
Department of Conservation and Natural Resources
8/240 Victoria Parade
East Melbourne Victoria 3002

The closing date for submissions is Friday 28 May 1993.
Inquiries may be directed to the Flora and Fauna Branch on 412 4385

A THOMPSON
ACTING SECRETARY
CONSERVATION AND NATURAL RESOURCES
Thursday 21 January 1993

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According to the AGM report, we have finally got this bit right. No more correspondence will be entered into.

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"AND IT'S GOODNIGHT FROM ME....."

Turn on

Freak out

PISS OFF

PRIVATE EYE A recent study of the Editorial Board

Tim

Leon

The unknown
"Third" Editor

